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ABSTRACT

Outlining both methods and results, this report describes Bismarck Junior College's (BJC's) use of the American Council on Education's model for assessing the short-term, current impacts of a college on local business volume. After chapters 1 and 2 discuss the value and focus of economic impact studies, chapter 3 describes BJC in terms of its history, mission, facilities, tax base, financial support, faculty and staff, students, enrollments since 1939, and community center. Next, chapters 4 and 5 review the objectives and theoretical base of the study. Chapter 6 details the methods used to calculate college-related business volume, value of local business property committed to college-related business, and expansion of the local lending institutions' credit base. After chapter 7 provides directions for surveying students and staff to determine their expenditures, chapter 8 presents data in 48 categories, including total college expenditures; staff salaries and residence patterns; housing and non-housing expenditures of students and staff; assessed property value; expenditures of visitors to the campus; bank deposits of the school and its staff; the consumer price index; and population trends. Then, chapter 9 explains the computations used to calculate these figures. Finally, chapter 10 summarizes findings. (DAB)

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ED229057

A STUDY

OF THE

ECONOMIC IMPACTS

OF

BISMARCK JUNIOR COLLEGE

UPON THE

LOCAL COMMUNITY

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February, 1982
Prepared by
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Assistant to President
Revised March, 1983

JC 830 133

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This complex study required cooperation and help from faculty, staff, and students of Bismarck Junior College in addition to the businesses and agencies that supplied help, information, and statistics.

An especial appreciation is extended to all faculty, staff, and students who completed and returned the survey questionnaires.

"Estimating the Impact of a College or University on the Local Economy" by John Caffrey and Herbert H. Isaacs was used as a how-to-do-it manual on conducting the research. This was a very useful guide and it was followed quite diligently in the preparation of this study. Consequently, much of the model explanations are excerpted from this book and for this I am deeply grateful.

I am especially grateful to Rita Lindgren for proofreading the drafts and for all the typing required to produce a final copy.

It should be noted that this is an experimental first attempt at a study of an economic impact survey of the College. Every attempt was made to check the computations, interpretations, and analyses. However, if errors or discrepancies are discerned, the author would appreciate hearing about them.

H. R. Schimmelpfennig

H. R. Schimmelpfennig

Chapter 1

PREFACE

The educational philosophy of Bismarck Junior College is based on the belief that all citizens of the service area are entitled to those services and offerings of the College from which they can profit.

To carry out this philosophy, BJC provides liberal arts, professional, vocational, technical, community service, general education, and counseling programs.

Through these programs there is an understandable educational impact to the local community and service area.

However, in addition to its mission of providing educational services, BJC brings money into the community which is spent in the community, and has an economic impact on the community. Educators and economists have recently begun to realize these impacts and to study them.

The American Council on Education has developed a model plan to measure economic effect. This model was developed by two California economists, John Caffrey and Herbert H. Isaacs. They identified areas of economic impact and developed a model system to measure these impacts.

An economic impact study is important in bringing to light various data and information that may be of concern to those persons and agencies concerned with taxes and economic factors in the local economy, to those involved in short-range and long-range plans for the College, to local business persons, to state legislators, and to the citizens who provide financial support to the College through taxation and by contributions.

Chapter 2

INTRODUCTION

Bismarck Junior College proposes that its programs and services are a contributing factor in the growth and development of our local community. We believe that our College is an economic contributor to the community because it funnels human and financial resources into local businesses and eventually to the consumer in the form of personal income and marketable job skills.

We believe that because of the existence of the College in the community, the quality of life is improved as federal, state, and private dollars flow through the College to the community and are converted into discretionary monies that yield benefits to the individual.

In recent years there has been an increasing demand from the public and legislators that colleges provide accountability for their existence, their programs, and for what they are doing. Because of this there is a need for colleges to investigate and evaluate all the advantages they provide and the reasons they are important to a community.

Educational, cultural, and aesthetic benefits to the community are generally recognized by the public. But there are significant economic advantages provided by the local college which go unrecognized. Jobs are created, people move to the community to work at the college and more money is brought into and spent in the community by the college, by students, by parents, and by the employees.

According to a study published by the Delaware State Chamber of Commerce, the creation of 100 new jobs in a community will create an additional 100 jobs in other areas--such as wholesale, retail, and service businesses. The 100 new jobs will create the need for one more retail establishment and require the construction of 16 new houses.

These economic factors are often overlooked in evaluating the worth of a college to a community, but tney do have a considerable impact upon the community.

This study addresses itself to an evaluation and disclosure of these various economic factors.

Chapter 3

THE COLLEGE

In assessing the economic impacts of Bismarck Junior College on its community, it is helpful to provide a brief description of the several components which make up the College.

HISTORY:

On March 31, 1939, the North Dakota Legislature passed enabling legislation (Senate Bill #209) to grant cities with a population of 10,000 or more the right to establish a junior college in connection with their public school system. A plan to establish a junior college on the third floor of Bismarck High School was approved by the voters on June 6, 1939.

The first classes started on September 4, 1939, with 12 part-time teachers and 73 students, with an additional 33 nurses from Bismarck Hospital. The first class graduated in May of 1941.

The college was supported entirely from tuition and fees. In 1949 the State Legislature passed permissive legislation for an 8 mill levy to support, operate, and maintain eligible Junior Colleges. In 1951, the Bismarck voters overwhelmingly approved such a levy.

In February, 1951 the State Legislature granted a 15-acre tract of land on the capitol grounds for the construction of a junior college building. The building was completed for occupancy on September 12, 1955. Within a few years, the building was out grown.

In March of 1959 the State Legislature granted state aid to Bismarck Junior College of $200 per year per full-time student. This amount was increased in succeeding years. The first state aid check was received on September 18, 1959 for $70,794.

In May, 1959 Harold Schafer donated approximately 100 acres at the northwest edge of Bismarck for a new campus. A new college building was built and was ready for occupancy July 1, 1961.

At about this same time, construction was started on the National Guard Armory building adjacent to the BJC campus. In succeeding years, additional buildings were built as follows:

1965 - men's and women's dormitory and student center

1968 - Library - classrcom building

1972 - Student Residence Hall

1974 - Vocational Technical Building
1974 - Student Union
1979 - Student Housing Apartments
1982 - Proposed Multi-Purpose Skills Center

The college was accredited by North Central Association of Colleges on March 30, 1966, and was reaccredited on July 27, 1976. It is currently being reviewed in another self-study for consideration of reaccreditation in 1983.

THE COMMUNITY COLLEGE CONCEPT:

Two-year colleges, at first called "junior" colleges and more recently known as community colleges, have grown in number to 1,231. The number of students now attending community colleges is 4,825,000.

The earliest colleges were generally called "junior" colleges because they primarily provided the first two years of college courses before transferring to a "senior" college for the final years.

Bismarck Junior College was originally named as a "junior" college and still retains this designation in its name. However, Bismarck Junior College, as do other community colleges, also serves additional primary functions and is truly a comprehensive community college.

A second function is to provide technical career training programs with a terminal certificate certifying competence combined with liberal education not provided in an exclusively vocational school.

A third function is to be responsive to the needs of the community. Working adults may seek job upgrading. Housewives may want to enter or re-enter the working world. Retirees may want courses for general interest and to make the transition from a life of work to a life of leisure. Others may want to "continue" their education by seeking courses for knowledge, advancement, entertainment, or personal interest.

In fulfilling these several functions the two-year colleges, as has Bismarck Junior College, have evolved into comprehensive community colleges whose mission is to meet the educational needs of the community. In meeting these needs, a college will have a very definite economic, social, cultural, and aesthetic impact upon the local community it serves.

Bismarck Junior College imposes such impacts upon the City of Bismarck and the surrounding local community.

LAND AND BUILDINGS:

Bismarck Junior College is a component of Bismarck Public School District No. 1. The District covers 163 square miles.

The college campus consists of 95 acres. Seven buildings have been built on campus with a gross area of 229,441 square feet. An additional Multipurpose Skills Center building is scheduled for construction to start in April, 1983, at an estimated cost of $1,200,000.

The total construction cost including the Skills Center is $7,811,619. The replacement value is estimated at $15,450,748.

TAX BASE:

The market value of the Bismarck Junior College district (which is the same as Bismarck Public School District) is $1,092,316,060. This reduces down to a taxable value of $54,615,803. Therefore, 1 mill produces tax revenue of $54,615.

Bismarck Junior College currently receives the following local mill levies:

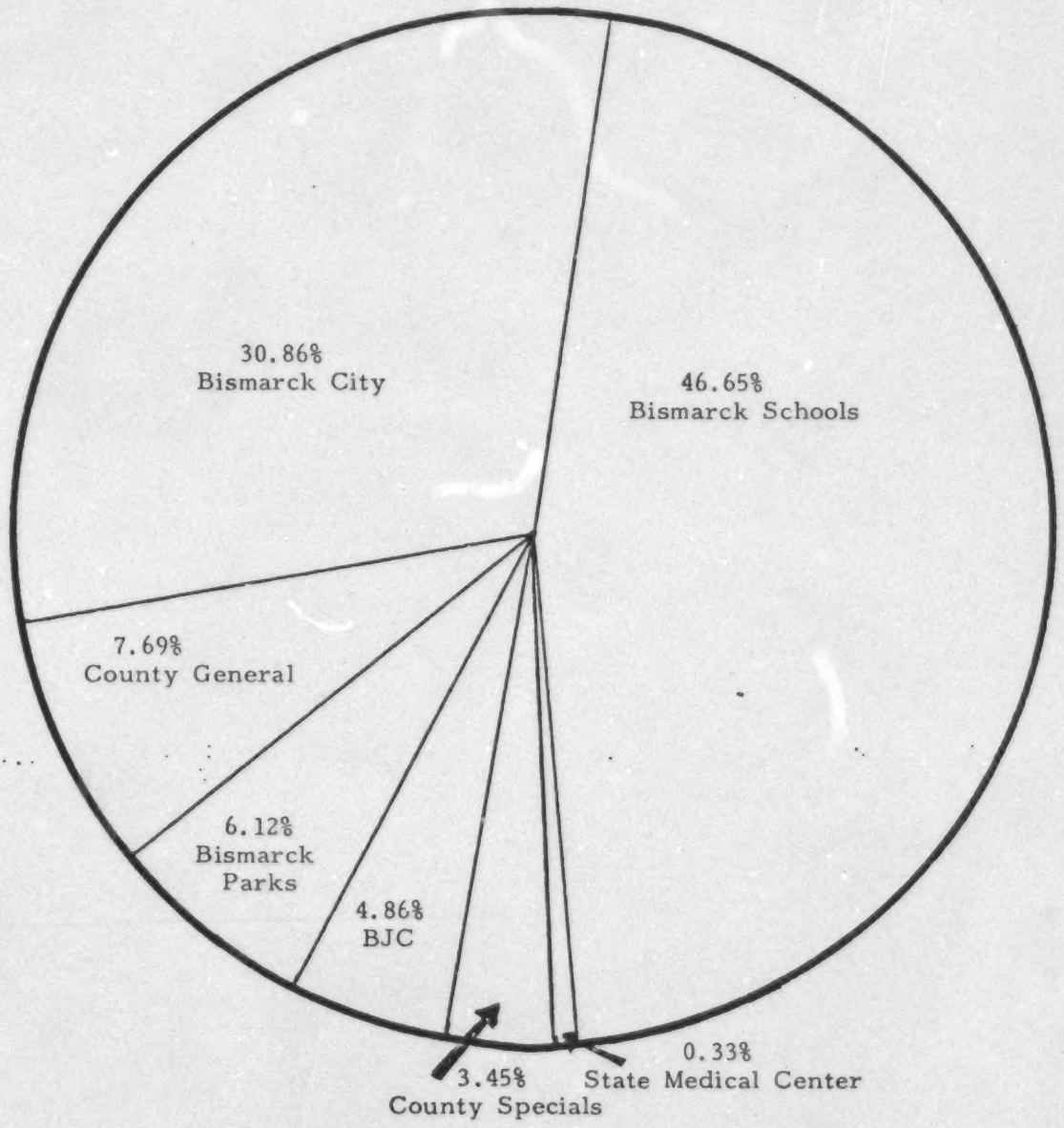
General operation	8.79 mills
Special assessments	1.64 mills
Social security	2.01 mills
Bond levy	2.00 mills
Total	14.44 mills

By comparison, other local governmental agencies receive mill levies and tax receipts as follows for the calendar year 1981.

BISMARCK PROPERTY TAX LEVY

	Mill Levy	Tax Levy	% of Tax Dollar
Bismarck Schools	138.42	$7,555,400	46.7%
City of Bismarck	91.59	4,686,809	29.0
County General	22.84	1,490,400	9.2
Bismarck Parks	18.16	930,112	5.7
BJC	14.44	789,156	4.9
County Specials	10.25	670,680	4.1
State Medical Center	1	65,238	.4
TOTALS	296.70	$16,187,795	100%

The split of the Bismarck Tax Dollar for 1981 is shown as follows:



FINANCIAL SUPPORT:

For the fiscal year 1980-81, BJC received funds from the following sources:

District 8-mill levy and personal property replacement tax	$ 624,460
State Board for Vocational Education Funds	705,843
Tuition & fees	1,295,683
State aid	1,421,496
Federal funds	5,999
Other	261,752
Total	$4,315,233

FACULTY AND STAFF:

To perform its educational mission, BJC employs the following full-time faculty and staff:

Administrators	9
Faculty	88
Professional Staff	14
Classified Staff	38
Total	149

In addition, there are many adjunct faculty and part-time instructors teaching evening classes. For this study, part-time personnel will be equated to full-time equivalent to estimate the impacts of spending by employees.

STUDENTS:

The following Enrollment Report (next page) lists each year's enrollment since the College began.

For the academic year 1980-81, the students are summarized by residence as follows:

	First Semester			Second Semester		
	Full-Time	Part-Time	Total	Full-Time	Part-Time	Total
Bismarck	654	516	1,170	619	521	1,140
Other ND	772	251	1,023	749	206	955
Out-of-State	64	10	74	66	5	71
Foreign	6	-	6	8	-	8
TOTALS	1,496	777	2,273	1,442	732	2,174

CAMPUS HOUSING:

Campus housing is provided for 118 men and 133 women. The Women's Residence Hall has rooms for 107 women; the Men's Dormitory has rooms for 102 men; the Student Housing Apartment has facilities for 16 women and 16 men.

The dormitories are always near 100% occupancy. Each fall there is a long waiting list of student for whom we are not able to provide rooms.

BISMARCK JUNIOR COLLEGE
ENROLLMENT REPORT

YEAR	FIRST SEMESTER			SECOND SEMESTER			SUMMER	FTE
	Full-Time	Part-Time	Total	Full-Time	Part-Time	Total		
1939-1940	47	57	104	45	59	104		
1940-1941	59	69	127	51	68	119		
1941-1942	48	63	111	42	70	112	29	
1942-1943	35	54	89	29	54	83	31	
1943-1944	70	93	163	32	93	125	87	
1944-1945	66	71	137	38	58	96	39	
1945-1946	85	39	124	100	21	121		
1946-1947	195	39	234	165	60	225	1	
1947-1948	185	93	278	170	62	232	3	
1948-1949	199	125	324	160	97	257	5	
1949-1950	216	119	335	187	95	282	28	
1950-1951	201	180	381	148	154	302	18	
1951-1952	196	120	316	123	149	272	18	
1952-1953	239	136	375	157	125	282	29	
1953-1954	191	190	381	143	127	270	54	
1954-1955	215	197	412	211	105	316	62	
1955-1956	288	153	441	215	173	388	31	
1956-1957	259	258	517	242	316	558	26	
1957-1958	307	338	645	287	478	765	28	
1958-1959	323	232	555	296	222	518	119	
1959-1960	337	194	531	264	230	494	110	
1960-1961	432	180	612	400	203	603	158	
1961-1962	500	196	696	440	100	540	188	
1962-1963	528	150	678	498	127	625	184	
1963-1964	527	124	651	485	120	605	193	
1964-1965	667	238	905	596	229	825	141	
1965-1966	792	268	1,060	727	336	1,063	151	922
1966-1967	827	442	1,269	749	270	1,019	136	981
1967-1968	851	389	1,240	850	301	1,151	165	971
1968-1969	923	398	1,321	891	369	1,260	135	1,107
1969-1970	978	420	1,398	901	423	1,324	173	1,138
1970-1971	1,042	413	1,455	948	436	1,384	276	1,097
1971-1972	1,074	558	1,632	1,005	634	1,639	316	1,196
1972-1973	1,068	619	1,687	1,029	559	1,588	293	1,391
1973-1974	1,091	639	1,730	1,078	641	1,719	336	1,551
1974-1975	1,170	658	1,828	1,152	562	1,714	347	1,624
1975-1976	1,306	850	2,156	1,367	1,081	2,448	432	1,808
1976-1977	1,425	1,076	2,501	1,331	1,203	2,534	629	2,270
1977-1978	1,486	1,583	3,069	1,347	1,541	2,888	602	2,362
1978-1979	1,496	1,579	3,075	1,356	1,588	2,944	605	2,272
1979-1980	1,485	1,693	3,178	1,366	1,788	3,154	792	2,220
1980-1981	1,496	777	2,273	1,442	732	2,174	807	1,975*

*Credit hours used for calculation. From 1976-1980 class hours were used for FTE determination.

COMMUNITY SOCIAL, CULTURAL, AND ENTERTAINMENT CENTER:

BJC acts as a social and cultural focal point in the Bismarck-Mandan area.

In addition to providing formalized education, BJC also provides entertainment, physical facilities, and other educational, social and cultural programs and activities which are available to the people in the community and surrounding trade area. Listed are examples of the various programs and activities provided during a typical year.

Entertainment

For students:

dances (17), entertainers (11), movies (10), and athletic events (40)

For the public:

dinner-dance, Lions Club Travel films, Mission Mountain Wood Band, jazz films, alumni dance, Whetstone Run Concert, variety show, band concerts, athletic events (including 18 basketball games, 5 football games, 4 wrestling matches, 9 baseball games, 1 track meet, 1 cross country meet, and 2 regional meets)

Physical Facilities

For meetings:

UND Masters Program, Electrical Contractors (8), Closet Writers (7), Development Foundation (3), Community Action, Engineers Club (3), Shade Tree Players (5), Business and Professional Women's Club (3), Sierra Club, Faculty & Professional Women (5), public meetings and hearings (2), ACT tests (3), Piano Teachers Association, General Motors (2), Professional Engineers Association (2), music and speech festivals (4), pageants, Burleigh County Homemakers, NDSU Engineering Department, Vocational Exploration Program, YMCA, Class 'B' Directors & Coaches, Mystic Athletic Club (10), ND Lions Club (11), Dakota Stage Limited, ND Dairy Goat Association, School Administrators, ND Student Council Convention, ND Higher Education Commission, Math Track Meet, Secretarial Exams

Educational

Workshops:

South Central Reading Council (2), Assertiveness Training, Parliamentary Procedures, Decisionmaking for Secretaries (4), Library Cataloging, Today's Woman, Career Exploration (3),

Personal Effectiveness, Crisis Intervention, Aerospace Education, Low Pressure Heating, NDEA Educators in Politics, Education of the Young Child, Small Business Tax Workshop, Fiscal Officers Workshop

Films:

Mental Health films (4), Cinema 100 (8)

Classes:

Communiversity (7), Yoga (5), Exercise, Heliarc Welding (3), Egg Decorating, Tai Chi Chih (5), Stereo Systems, Portrait Drawing & Photography (4)

Seminars:

Grant Writing, Cult Awareness, Amoco Oil, Sales, Jazz Clinic, Drum Clinic, English, Saving Money, Protect Your Assets, Program for AA

Conferences:

Range Management, Today's Woman, Financial Planning, Economic Clergy, Death & Dying

Social-Cultural

Visiting Scholars:

The Gary Burton Quartet (jazz vibraphonist), James Welch (poet and novelist), Jeffrey Van (classical guitarist), Dr. Albert Bartlett (authority on energy), Karl Hess (political libertarian), The Guthrie Theatre (presenting "The Rainmaker"), Jazz Celebration (concerts, films, discussions, and performances by Jaki Byard and Dizzy Gillespie), The Guthrie Players on Tour (presenting "Mark Twain"), Dr. Bernard O'Kelly (authority on Canada), Alex Romanov (violinist), Frank Koch (lecture on food additives), Paul Bodmer (lecture on ND literature)

Play Productions:

"Look Homeward Angel," "Up Rose a Burning Man," "Fiddler on the Roof," and "Anything Goes"

Other:

Christian Fellowship and Bible Studies, Circle C Ranch Bible Seminar, Blood Drives (3), dedication of Gannon Art Gallery, NDSU Choir Concert, Piano Recital, Agri-Business Club Banquet, Recognition Dinner, Methodist Youth Dinner, Carpenter Apprentice Luncheon, Shiloh Christian School Dinner, Reception for Legislators,

Burleigh County 8th Grade Graduation, Seventh Day Adventist Crusade, Open houses (for Campus Ministry, Life Development Center, Gannon Art Gallery, George Pfeifer Art Display), Church of God, Miss ND National Teenage Contest, Bai Hai Meetings

Chapter 4

DESCRIPTION OF THE STUDY

In most communities the presence of an institution of higher education is a significant factor, both socially and economically. Its impact is made not only in its functions of teaching, research, and public service, but additionally as a source of entertainment, pride, and revenue.

This study is directed to serve as a general guide to the consideration of the fair assessment of the economic impacts of Bismarck Junior College on its local environment and as a specific guide to the positive effects of these impacts.

It is intended to be used by the College for public information, by the Bismarck Area Chamber of Commerce in support of its College Relations program, by other civic and community groups, or by any agency concerned with public relations and the town-gown relationship.

This study will reveal that there are many different economic impacts and that they cannot simply be added up to a single meaningful figure which says this is the net effect. Instead there are specific impacts which have an effect important to the community. Most of these effects are current and short-range.

This study is not intended to evoke long-range effects such as the upgrading of skilled and professional manpower, the contribution of scientific research, or the drawing power of the college community as a desirable place to live or establish a business.

Also, no determination is made of the increased lifetime earnings and productivity of the graduates of BJC.

The methods used to complete this study are intended only to provide explicit, reasonable, straightforward procedures for estimating the more direct economic impacts of BJC on its local community.

Chapter 5

THEORY BASE

The economic impact to a community is based on the theory that for every dollar spent for capital expenditures, salaries, services, and supplies by a college, there will be many persons and businesses in the community who benefit either directly or indirectly from the original expenditure.

Money spent for capital expenditures can result in a commission for salespersons, a profit for the manufacturer, and a profit for the producers of the materials used in producing the finished product.

Money spent for salaries may be spent locally for food, clothing, shelter, services, other goods, or placed in savings. The merchants and bankers are the direct beneficiaries but others receive benefits from the transactions.

The money in savings and checking accounts enable the financial institutions to finance homes, cars, business ventures, and other items for other additional people. The increased value of the properties purchased results in an increase of property valuation and a resultant increase in tax money.

The benefits of additional money in a community as a result of the existence of a college are many and varied. This study will attempt to bring them to light and evaluate their effect as economic impacts.

Chapter 6

METHODOLOGY

This study follows the methodology presented in John Caffrey and Herbert H. Isaacs, "Estimating the Impact of a College or University on the Local Economy" (American Council on Education, 1971) and in some instances the narrative consists of excerpts from this publication.

Economists Caffrey and Isaacs developed three models for estimating the economic impact of colleges on the local economy.

Model B measures the economic impact on local businesses.

Model G measures the economic impact on local governments.

Model I measures the economic impact on local individuals.

The models are designed to be used for determing the magnitude of the economic impact of a college upon its local environment in a given time period. They are not intended to reflect a comprehensive, in-depth picture of all possible economic relationships between a college and a community. They do not deal with the college's effect on the quality of life in the community. They do not take into account the tempo of economic activity, the economic calendar, or economic stability.

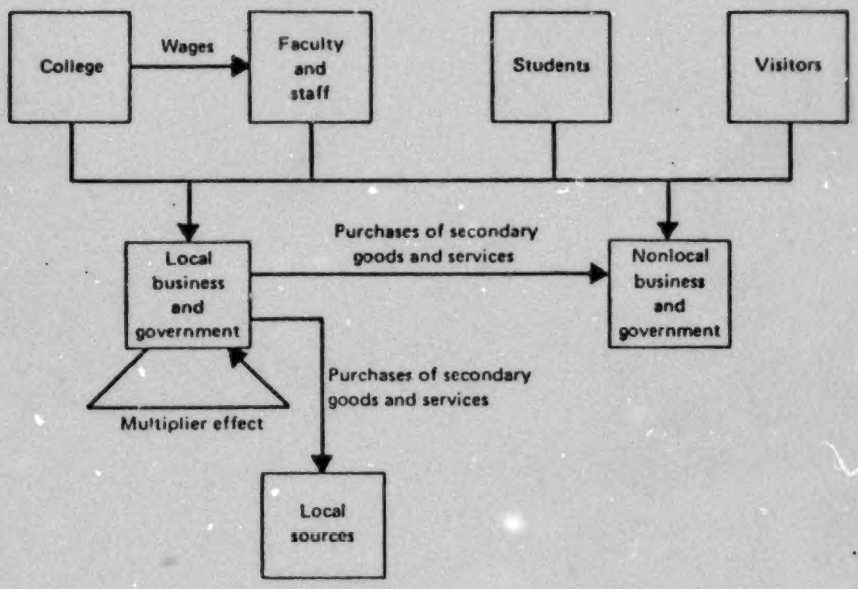
The models include only a study of expenditures. It is not as easy to identify expenditures and trace patterns of spending as it is for revenue.

For this study, four spenders are identified:

1. The College as a business
2. Faculty and staff as private individuals
3. Students as private individuals
4. Visitors as private individuals

The following expenditure model shows how money flows from the four spender groups to the various sectors in the community.

Expenditure Model



The College receives revenues from local tax levies, student tuition, state aid, federal funds, and other miscellaneous sources. These revenues are spent by the College as wages to staff and as purchases from local and nonlocal business.

In addition the staff, students, and visitors, all as private individuals, expend money to local and nonlocal business.

Some money received by local businesses is recycled as a result of the multiplier effect, and some is expended to secondary local sources, and the balance is expended to nonlocal business.

This study addresses itself only to Model B, The Economic Impact on Local Businesses. Sub-models are addressed to College - Related Business Volume, Value of Local Business Property Because of College-Related Business, and Expansion of the Local Banks' Credit Base Resulting from College-Related Deposits.

The following explanations are given for Model B sub-models studied to estimate the economic impact on local business. The mathematical equation for each model is given in Chapter 9, "Computation for Models."

Model B-1 College-Related Business Volume

This model includes:

a. Local expenditures by the College, faculty, staff, students, and visitors to the College

b. Purchases from local sources by local businesses in support of their college-related business

c. Local business volume stimulated by college-related income by local individuals other than College facutly, staff, and students

Model B-2 Value of Local Business Property Committed to College-Related Business

This model includes:

a. Value of local business real property committed to college-related business

b. Value of local business inventory committed to college-related business

Model B-3 Expansion of the Local Lending Institutions Credit Base

Lending institutions are able to make loans because of the money in checking (demand) and savings (time) accounts of people in the community. The Federal Reserve System requires that a minimum amount of deposits be placed in reserves by each bank. According to a phone survey of local banks, they are required to keep on reserve approximately 3% of their time and demand deposits. The balance may be lent out and represents an expansion of their credit base, and provides the availability of more funds in the local money market.

Chapter 7

SURVEYING THE STAFF AND STUDENTS

One of the tasks of the economic impact study is to obtain valid information from staff and students.

Before the survey instruments are circulated, plans should be implemented to inform the staff and student body of the impending economic impact study. This may be done through activities such as news releases, announcements directly to staff, to the BJCEA and to the All-Campus Senate.

It is worthwhile to confer with staff to explain the purpose of the survey and to have their support. Every possible step should be taken to assure the staff the survey is needed, and it is not an attempt by the administration to extract personal kinds of information. The staff must be also convinced the survey information is confidential data.

DIRECTIONS FOR SURVEYING COLLEGE STAFF:

1. Survey only full-time college personnel. Part-time personnel may have another job, and information which they give on a questionnaire may be biased. Part-time employees will be included in the study on the basis of equivalent full-time personnel.

2. Inform the staff when the survey instruments will be distributed, so the survey instrument is not a surprise to them. Request that the survey instruments be returned immediately. The questionnaires will take only a few minutes to complete. If they are not returned in three days, send out reminders until you have at least 60 percent of the forms returned.

3. Questionnaires were distributed to all 149 full-time staff. Eighty responses were received as follows:

	Response	Number Sent	%Response
Administrators	9	9	100%
Faculty	51	89	57%
Professional Staff	12	14	86%
Classified Staff	11	37	30%
Total	80	149	54%

4. Tabulate the information. After a summary of all information is completed, it will be necessary for answers to some questions to be separated into categories as follows:

Answers to questions 6, 7, 8, and 9 should be tabulated according to those who live in the district (Bismarck) and those who live out of the district (Mandan) and other out-of-district. (Answers to question 5 tell if a staff member lives in or out of the district.) Answers to question 8 should also be tabulated according to the type of housing in question 7.

DIRECTION FOR SURVEYING STUDENTS:

It is recommended that students be surveyed while they are in their classes. If the classes are randomly selected from all classes scheduled during a particular term, the sample should be more than adequate.

The procedure is as follows:

A. Probability or Random Sample Method

1. Take a listing of all courses offered during a term. Then number them from 1 to the final number of courses.

2. Using a table of random numbers select 5 percent of the total courses.

B. Systematic Sample Method

1. If the sample is to consist of 5% of the universe, the first item could be selected at random from the first 20 items, and then every 20th item throughout the remainder of the list is selected.

2. A computer printout of courses offered for the Spring Semester 1981 lists 580 class sections offered. A 5% random sampling was selected, using the systematic sample method. The first class section was selected from a table of random numbers from the first 10 sections and then ever 20th class section throughout the remainder of the list was selected. The sections selected included courses taught in all divisions of the College.

   Questionnaires were distributed to 29 class sections. Responses were received from 337 full-time students. This is 23% of the full-time enrollment of 1,469 students. A Student Survey #2 was later distributed to all of Mr. Ray Heid's classes to receive information inadvertently omitted from the original questionnaire. Responses were received from 120 full-time students. This is 8% of the full-time enrollment of 1,469 students.

C. Prepare appropriate instructions for teachers of the classes. Teachers should have been informed of this procedure and understand what is taking place. However, remember there will probably be some part-time teachers involved who will

need special instructions. The whole process can be completed in ten minutes time in the classroom. The instructor should collect the forms and return them to a designated person. A sample instruction sheet is displayed on the next page.

D. Tabulate the information After a summary of all information has been made, some of the answers need to be tabulated in special categories.

E. Student Survey - Answers to questions 4, 5, 6, 7, 8, and 9 should be tabulated according to full-time or part-time student status.

F. Questionnaires used for this study are displayed on the following pages.

April 22, 1981

Faculty Member _____

One of my projects for this year is to do an Economic Impact Study of BJC on the local community. Part of the information needed is obtained from students by way of a survey.

I need your help and cooperation to administer a questionnaire to the students in your class. This class was picked by random sample from all the classes scheduled for the Spring Semester 1980-81.

Therefore, will you take a few minutes of your class time to have your students fill in the questionnaire. It should take only a few minutes.

Procedure:

1. Pass out the questionnaire to each student in the selected class as indicated below.
2. Ask the students to complete the questionnaire.
3. If a student has previously filled out a questionnaire he/she should not do so again.
4. If a student has any questions, he/she should complete the questionnaire as best he/she can based upon the information given.
5. All questions should be answered.
6. Collect all questionnaires, and return them to me.

If you have any questions or problems, please contact me. Thanks for your help.

H. R. Schimmelpfennig
Assistant to President

HRS/rrl

Class Selected _____
Course # _____
Section # _____
Room _____
Instructor _____
Number of Students: _____

PLEASE RETURN THIS SHEET WITH COMPLETED QUESTIONNAIRES.
ALSO RETURN UNUSED QUESTIONNAIRES.

7-4

BISMARCK JUNIOR COLLEGE
Economic Impact Survey
College Staff Survey

Purpose: The following questions are designed to gather information about spending patterns in our community college area in order to prepare a study of the economic impacts of Bismarck Junior College on its neighboring communities.

The questions are the check-off or fill-in type and should require only a few minutes to complete.

We ask your cooperation and assure you that all information given by you will remain confidential.

Please complete this questionnaire and return to Mr. H. R. Schimmelpfennig.

We hope to have a 100% return.

THANK YOU FOR YOUR ASSISTANCE

1. What is your college status? Check the category representing your status as listed by the Personnel Office.

   A. _____ Administration

   B. _____ Faculty

   C. _____ Professional Staff

   D. _____ Classified Staff

2. Are you employed full-time (normal 40-hour week or normal teaching load) or part-time (less than 40 hours per week or less than normal teaching load)?

   A. _____ Full-Time

   B. _____ Part-Time

3. What is your age? Check one

   A. _____ 24 or under
   B. _____ 25-29
   C. _____ 30-34
   D. _____ 35-39
   E. _____ 40-44
   F. _____ 45-49
   G. _____ 50-54
   H. _____ 55 or older

4. What is your sex? Check one

   A. _____ Female

   B. _____ Male

5. Where do you live? Check one

   A. _____ In city of Bismarck

   B. _____ In city of Mandan

   C. _____ Other _____

6. How many persons are living in your household? (Household = you, your spouse, and children whom you support)

   A. _____ Number of persons

   B. _____ How many are children under 18?

   C. _____ How many attend public schools in Bismarck?

   D. _____ How many attend public schools in Mandan?

7. In what type of housing do you reside? Check one

   A. _____ Rent an apartment

   B. _____ Rent a house

   C. _____ Own a house

   D. _____ Live with parents

   E. _____ Other _____

8. What percent of your monthly income (take-home pay) is spent for housing?

   _____%

9. How much do you spend monthly for your place of residence? Check one

   A. For rent $ _____

   B. For mortage payment (include insurance and taxes) $ _____

10. What is the total gross annual income of all persons in your household?

   A. Before payroll deductions $ _____

   B. After payroll deductions $ _____

11. What is your approximate monthly expenditures in business establishments in these local communities?

A. Bismarck $ _____

B. Mandan $ _____

12. Estimate the percent of your income which is spent outside of the College District (City of Bismarck)

_____%

13. What are your average balances in the following categories?

A. Local bank checking accounts $ _____

B. Local bank savings accounts $ _____

C. Local credit union savings $ _____

D. Local savings and loan institution savings accounts $ _____

THANK YOU!

BISMARCK JUNIOR COLLEGE
Economic Impact Survey
Student Survey

Purpose: The following questions are designed to gather information about spending patterns in our community college area in order to prepare a study of the economic impacts of Bismarck Junior College on its neighboring communities.

The questions are the check-off or fill-in type and should require only a few minutes to complete.

We ask your cooperation and assure you that all information given by you will remain confidential.

We hope to have a 100% return so please complete the questionnaire now and return it as requested.

Thank you for your assistance.

H. R. Schimmelpfennig
Assistant to President

1. What is your college status? (A full-time student is one who is enrolled in 12 or more credit hours or its equivalent) Check one

   A. _____ Full-Time Student

   B. _____ Part-Time Student

2. What is your sex? Check one

   A. _____ Female

   B. _____ Male

3. Where do you live? (Your normal permanent home residence) Check one

   A. _____ In city of Bismarck

   B. _____ In city of Mandan

   C. _____ Other _____

4. In what type of housing do you reside during the school term? Check one

   A. _____ Rent a room or apartment (yourself and/or with others)

   B. _____ Own my own home

   C. _____ Live with parents or relatives

   D. _____ College dormitory or college apartment

   E. _____ Other _____

5. Do you rent a room or apartment especially to be close to the College during the school term? Check one

   A. _____ Yes

   B. _____ No

6. What is the approximate amount of money related to college costs that you spend per month for the following items?

   A. Food $ _____

   B. Housing $ _____

   C. Transportation $ _____

   D. Books and School Expenses $ _____

   E. Other Expenses $ _____

7. Would you be attending another college if BJC were not here? Check one

   A. _____ Yes

   B. _____ No

   If "no" what would you be doing_____

   _____

8. If you do not live in Bismarck or Mandan, how many trips per year do your parents, guardians, or close friends make to Bismarck because you are enrolled in college at BJC?

   A. _____

   How much do you estimate that they spend per trip? (For shopping, gas, meals, lodging, entertainment, etc.)

   B. _____

THANK YOU!

BISMARCK JUNIOR COLLEGE
Economic Impact Survey
Student Survey #2

Purpose: The following questions are designed to gather further information about spending patterns in our community college area in order to prepare a study of the economic impacts of Bismarck Junior College on its local community.

1. What is your college status? (A full-time student is one enrolled in 12 or more credit hours or its equivalent).

   _____ A. Full-time Student

   _____ B. Part-time Student

2. While attending school at BJC where do you live?

   _____ A. In Bismarck

   _____ B. Other

3. What are your average balances in the following categories?

   A. Bismarck bank checking accounts $_____

   B. Bismarck bank savings accounts $_____

   C. Bismarck credit union savings $_____

   D. Bismarck savings and loan institution savings accounts $_____

THANK YOU!

H. R. Schimmelpfennig
Assistant to President

April 22, 1981

Faculty Member _____

One of my projects for this year is to do an Economic Impact Study of BJC on the local community. Part of the information needed is obtained from students by way of a survey.

I need your help and cooperation to administer a questionnaire to the students in your class. This class was picked by random sample from all the classes scheduled for the Spring Semester 1980-81.

Therefore, will you take a few minutes of your class time to have your students fill in the questionnaire. It should take only a few minutes.

Procedure:

1. Pass out the questionnaire to each student in the selected class as indicated below.
2. Ask the students to complete the questionnaire.
3. If a student has previously filled out a questionnaire he/she should not do so again.
4. If a student has any questions, he/she should complete the questionnaire as best he/she can based upon the information given.
5. All questions should be answered.
6. Collect all questionnaires, and return them to me.

If you have any questions or problems, please contact me. Thanks for your help.

H. R. Schimmelpfennig
Assistant to President

HRS/rrl

Class Selected _____
Course # _____
Section # _____
Room _____
Instructor _____
Number of Students: _____

PLEASE RETURN THIS SHEET WITH COMPLETED QUESTIONNAIRES.
ALSO RETURN UNUSED QUESTIONNAIRES.

7-4

BISMARCK JUNIOR COLLEGE
Economic Impact Survey
College Staff Survey

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The questions are the check-off or fill-in type and should require only a few minutes to complete.

We ask your cooperation and assure you that all information given by you will remain confidential.

Please complete this questionnaire and return to Mr. H. R. Schimmelpfennig.

We hope to have a 100% return.

THANK YOU FOR YOUR ASSISTANCE

1. What is your college status? Check the category representing your status as listed by the Personnel Office.

   A. _____ Administration

   B. _____ Faculty

   C. _____ Professional Staff

   D. _____ Classified Staff

2. Are you employed full-time (normal 40-hour week or normal teaching load) or part-time (less than 40 hours per week or less than normal teaching load)?

   A. _____ Full-Time

   B. _____ Part-Time

3. What is your age? Check one

   A. _____ 24 or under
   B. _____ 25-29
   C. _____ 30-34
   D. _____ 35-39
   E. _____ 40-44
   F. _____ 45-49
   G. _____ 50-54
   H. _____ 55 or older

4. What is your sex? Check one

   A. _____ Female

   B. _____ Male

5. Where do you live? Check one

   A. _____ In city of Bismarck

   B. _____ In city of Mandan

   C. _____ Other _____

6. How many persons are living in your household? (Household = you, your spouse, and children whom you support)

   A. _____ Number of persons

   B. _____ How many are children under 18?

   C. _____ How many attend public schools in Bismarck?

   D. _____ How many attend public schools in Mandan?

7. In what type of housing do you reside? Check one

   A. _____ Rent an apartment

   B. _____ Rent a house

   C. _____ Own a house

   D. _____ Live with parents

   E. _____ Other _____

8. What percent of your monthly income (take-home pay) is spent for housing?

   _____%

9. How much do you spend monthly for your place of residence? Check one

   A. For rent $ _____

   B. For mortage payment (include insurance and taxes) $ _____

10. What is the total gross annual income of all persons in your household?

   A. Before payroll deductions $ _____

   B. After payroll deductions $ _____

11. What is your approximate monthly expenditures in business establishments in these local communities?

A. Bismarck $ _____

B. Mandan $ _____

12. Estimate the percent of your income which is spent outside of the College District (City of Bismarck)

_____%

13. What are your average balances in the following categories?

A. Local bank checking accounts $ _____

B. Local bank savings accounts $ _____

C. Local credit union savings $ _____

D. Local savings and loan institution savings accounts $ _____

THANK YOU!

BISMARCK JUNIOR COLLEGE
Economic Impact Survey
Student Survey

Purpose: The following questions are designed to gather information about spending patterns in our community college area in order to prepare a study of the economic impacts of Bismarck Junior College on its neighboring communities.

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We ask your cooperation and assure you that all information given by you will remain confidential.

We hope to have a 100% return so please complete the questionnaire now and return it as requested.

Thank you for your assistance.

H. R. Schimmelpfennig
Assistant to President

1. What is your college status? (A full-time student is one who is enrolled in 12 or more credit hours or its equivalent) Check one

   A. _____ Full-Time Student

   B. _____ Part-Time Student

2. What is your sex? Check one

   A. _____ Female

   B. _____ Male

3. Where do you live? (Your normal permanent home residence) Check one

   A. _____ In city of Bismarck

   B. _____ In city of Mandan

   C. _____ Other _____

4. In what type of housing do you reside during the school term? Check one

   A. _____ Rent a room or apartment (yourself and/or with others)

   B. _____ Own my own home

   C. _____ Live with parents or relatives

   D. _____ College dormitory or college apartment

   E. _____ Other _____

5. Do you rent a room or apartment especially to be close to the College during the school term? Check one

   A. _____ Yes

   B. _____ No

6. What is the approximate amount of money related to college costs that you spend per month for the following items?

   A. Food $ _____

   B. Housing $ _____

   C. Transportation $ _____

   D. Books and School Expenses $ _____

   E. Other Expenses $ _____

7. Would you be attending another college if BJC were not here? Check one

   A. _____ Yes

   B. _____ No

   If "no" what would you be doing_____

   _____

8. If you do not live in Bismarck or Mandan, how many trips per year do your parents, guardians, or close friends make to Bismarck because you are enrolled in college at BJC?

   A. _____

   How much do you estimate that they spend per trip? (For shopping, gas, meals, lodging, entertainment, etc.)

   B. _____

THANK YOU!

BISMARCK JUNIOR COLLEGE
Economic Impact Survey
Student Survey #2

Purpose: The following questions are designed to gather further information about spending patterns in our community college area in order to prepare a study of the economic impacts of Bismarck Junior College on its local community.

1. What is your college status? (A full-time student is one enrolled in 12 or more credit hours or its equivalent).

   _____ A. Full-time Student

   _____ B. Part-time Student

2. While attending school at BJC where do you live?

   _____ A. In Bismarck

   _____ B. Other

3. What are your average balances in the following categories?

   A. Bismarck bank checking accounts $_____

   B. Bismarck bank savings accounts $_____

   C. Bismarck credit union savings $_____

   D. Bismarck savings and loan instituion savings accounts $_____

THANK YOU!

H. R. Schimmelpfennig
Assistant to President

Chapter 8

REQUIRED DATA

1. Total College Expenditures $4,939,765

Source: Annual Report for Fiscal Year Ended June 30, 1981

	Total Expenditures For Year	% Spent Locally	Amount Spent Locally
General Fund	$4,344,213		
Less Salaries			
Less Payroll Taxes			
Net Gen. Fund $1,346,894		82	$1,104,453
Dorm Op. & Maint. Fund			
Food Purchases	106,351	92	97,843
Supplies-Cafeteria	7,044	92	6,480
Supplies-Dormitory	1,764	92	1,623
Repair & Maint.-Cafeteria	10,635	98	10,422
Misc. Expense-Cafeteria	1,988	100	1,988
Misc. Expense-Dormitory	6,243	100	6,243
Laundry	3,752	100	3,752
Apartment Op. & Maint. Fund			
Supplies	610	92	561
Repairs & Maintenance	2,923	98	2,864
Miscellaneous Expense	3,839	100	3,839
Utilities	2,343	100	2,343
Activities Association	242,984	80	194,387
Junior College Bookstore			
Purchases-New Books	115,862	1	1,158
Purchases-Supplies	45,638	1	456
Miscellaneous Expense	7,550	60	4,530
Postage & Freight	2,120	100	2,120
Student Union			
Supplies	1,211	92	1,114
Repair & Maintenance	14,161	98	13,878
Remodeling	11,398	98	11,170
Miscellaneous Expense	1,374	100	1,374
Total of Columns	$4,939,765		$1,470,567
Less Salaries Paid from General Fund	-2,807,577		
Less Payroll Taxes Paid from General Fund	- 189,742		
Net Totals	$1,942,446	75.706%	$1,470,567

2. Percentage of College Funds Spent Locally

(Does not include salaries) Source: Sample several different month's expenditures. Determine the local expenditures. Divide total local expenditures by total of all expenditures to get the percent which is spent locally in the College district.

	Total Local Expenditures	Total Non-local Expenditures	Total All Expenditures	% Local to all Expenditures	
General Fund					82%
08/80	$54,536	$18,545	$73,081	74.6	
11/80	59,738	16,260	75,750	78.6	
02/81	70,752	5,998	76,750	92.2	
05/81	50,326	11,348	61,674	81.6	
Totals	$235,352	$52,151	$287,503	82%	
Dorm Operations - Food Purchases					92%
03/81	$ 7,478	$ 201	$ 7,679		
11/81	13,433	1,704	15,137		
Totals	$20,911	$ 1,905	$22,816	92%	
Dorm Operations - Supplies					92%
03/81	$ 8,834	$ 811	$ 9,645		
11/81	601	7	608		
Totals	$ 9,435	$ 818	$10,253	92%	
Dorm Operations - Repair & Maintenance					98%
03/81	$ 607	$ 15	$ 622		
11/81	1,802	27	1,829		
Totals	$ 2,409	$ 42	$ 2,451	98%	
Dorm Operations - Miscellaneous				100%	100%
Dorm Operations - Laundry				100%	100%
Activities Association					80%
04/81	$13,634	$ 5,244	$18,878		
11/81	18,108	2,894	21,002		
Totals	$31,742	$ 8,138	$39,880	80%	

3. Gross Salaries Paid to Staff — $3,349,676

Source: Payroll Department - YTD gross for calendar year 1981

4. Percentage of Full-time College Staff Residing In Bismarck — 86.12%

Source: College Staff Survey Question 5
Personnel Directory, Septmeber 8, 1981

	Personnel Records		Survey	
	Number	% of Total	Number	% of Total
Live in Bismarck	130	87.24%	68	85.00%
Live in Mandan			7	8.75%
Live in Mandan & Other	19	12.75%	5	6.25%
Total	149	100.00%	80	100.00%

Average of 2 sources - 86.12%

5. Percentage of Staff Who Live Outside of Bismarck — 15%

Source: College Staff Survey Question 5

Live in Bismarck	68	85.00%
Live in Mandan	7	8.75%
Live in Other	5	6.25%
Total	80	100.00%

6. Percentage of Full-time College Staff Who Rent Housing in Bismarck — 12.5%

Source: College Survey Question 7

	Bismarck	Mandan	Other	Total
Rent an apt. or house	10 (12.50%)	0	0	10
Own a house, trailer, condo	57 (71.25%)	7	5	69
Other	1 (1.25%)	0	0	1
Total	68 (85.00%)	7	5	80

7. Disposable Income of Faculty and Staff (this is money paid directly to staff, and does not include taxes and retirement). Basically, it is net take-home pay. $2,382,660

Source: Payroll Department "Calendar Year-to-Date Register"

Gross salaries paid to staff for calendar year 1981	$3,349,676
Less Deductions -	
FICA	- 219,564
Federal Withholding	- 534,277
State Withholding	- 22,933
Blue Cross	- 12,950
Teachers Retirement	- 154,165
State Retirement	- 22,827
Net Disposable Income	$2,382,660

8. Percentage of Income Spent for Housing in Bismarck 25%

Source: College Staff Survey Question 8

	Bismarck	Mandan	Other	Total
Total percents	1,674	198	48	1,920
Total responses	67	7	5	79
Average percent	24.98%	28.28%	9.60%	24.30%

9. Percentage of Income Spent in Bismarck by Staff Living in Bismarck 94%

Source: College Staff Survey Question 12

	Live in Bismarck	Live in Mandan	Live in Other	Total
Total %'s spent outside of Bismarck	385	225	141	751
Total responses	65	7	5	77
Average spent outside of Bismarck	5.92%	32.14%	28.2%	9.75%
Average % spent in Bismarck	94.08%	67.86%	71.80%	90.25%

10. Percentage of Income Spent on Non-housing Costs by Staff Living in Bismarck — 75%

Source:

	Live in Bismarck	Live in Mandan	Live in Other	Total
Spent for housing	100%	100%	100%	100%
Spent for non-housing	- 24.98%	- 28.28%		-24.30%
	75.02%	71.72%	75.70%	75.70%

11. Total College Staff-years — 174

Source: Personnel Department

Full-time staff		149
Part-time staff equated to full-time		25
Proctors, tutors, cafeteria	19 @ 1/2 =	9.5
Adjunct faculty	25 @ 2/5 =	10.0
Part-time permanent	11 @ 1/2 =	5.5
	55	25.0
Total full-time equivalent (FTE) staff		174

12. Average Disposable Income of Staff — $13,693

Source: Estimate by dividing disposable income of staff, (item 7) by staff years (item 11)

Disposable income	$2,382,660
Staff years (FTE)	174
Average	

13. Number of Full-time Students — 1,469

Source: Enrollment Report from "Annual Report for FY ending June 30, 1981."

First semester	1,496
Second semester	1,442
Total	2,938
Average	1,469

14. Number of Part-time Students — 1,704

Source: Enrollment Report from "Annual Report for FY ending June 30, 1981"

First semester	1,677
Second semester	1,732
Total	3,409
Average	1,704

15. Average Expenditure of Part-time Student Per Month — $133.94

Source: Student Survey Question 6

Amount spent per month for:

Food	$ 462	÷	32	=	$ 14.44
Housing	$ 615	÷	32	=	19.21
Transportation	$1,265	÷	32	=	39.53
Books	$1,052	÷	32	=	32.88
Other	$ 892	÷	32	=	27.88
Total	$4,286	÷	32	=	$133.94

16. Percentage of a Bismarck Tenant's Total Expenditures Likely to be Spent for Rental Housing — 28.86%

Source: College Staff Survey Question 9A & 10B
Appendix A of "Estimating the Impact of a College or University on the Local Economy"

Average amount spent monthly for rent by Bismarck tenants	$ 280
Average amount spent yearly for rent by Bismarck tenants	3,360
Average annual income of Bismarck tenants after payroll taxes of all persons in household	12,391

Proportion of tenants' rental expenditures to total tenants' disposable income

Per survey ($3,360 - $12,391)	.2712
Per appendix A	.306
Per average	.2886

17. Coefficients of the Concept of the Multiplier

Source: Appendix B, The Concept of the Multiplier, "Estimating the Impact of a College or University on the Local Economy"

Coefficient (mp) represents the degree to which local businesses purchase goods and services from local sources (suggested range $.60 to $.80 per dollar of expenditures) — $.60

Coefficient (mi) represents the degree to which individual income received from local business activity is spent and respent locally (suggested range $.15 to $.30 per dollar of expenditures) — $.20

18. Percent of Income Which is Spent Outside of Bismarck — 5.8%

Source: College Staff Survey Question 12

Total of percentages	377
Total responses to question	65
Average percent per person	5.80%

19. Percent of a Consumer's Total Expenditures Spent on Nonhousing Items — 70%

Source: College Staff Survey Question 8
Appendix A "Estimating the Impact of a College or University on the Local Economy"

Totals of percentages of take-home pay spent on housing	1,890%
Total responses to question	80
Average proportion spent on housing	23.63%
Average proportion spent on nonhousing items	76.37%
Total	100.00%

Per survey	76.37%
Per appendix A	62.60%
Per Average	70%

20. Estimated Average Annual Local Expenditures by Each Nonlocal Faculty and Staff Person — $8,280

Source: College Staff Survey Question 11A

Total dollars spent in Bismarck	
Per month	$8,280
Per year	99,360
Responses to question	12
Average expenditure	$8,280

21. Total Number of Full-Time Faculty and Staff — 149

Source: Personnel Department, "Master List of Full-time Personnel, September 1, 1981"

Administrators	9
Facutly-Athletics	3
Faculty-University Parallel	36
Faculty-Vocational Ed.	49
Professional	14
Clerical & Secretarial	18
Technical/Paraprofessional	7
Service/Maintenance	13
Total	149

22. Total Sales, Bismarck, 1979 — $519,126,529
Total Sales, Mandan, 1979 — $141,617,496

Source: North Dakota Sales and Use Tax Statistical Report, 1979

23. Average Distance for a Bismarck Resident to Make a Purchase Within His/Her Local Environment — 3 miles

Average Distance for a Bismarck Resident to make a Purchase in the Competing Neighboring Community of Mandan — 10 miles

Average Distance for a Mandan Resident to Make a Purchase in His/Her Local Environment — 2 miles

Average Distance for a Mandan Resident to Make a Purchase in the Competing Neighboring Community of Bismarck — 10 miles

Source: Estimate based on maps of Bismarck & Mandan and on distance between the two cities.

24. Local Expenditures by Visitors to the College — $889,249

Source: Facilities Usage Reports
Estimates

For Business Purposes: (Estimates provided by the Director Admissions & Community Services and the Superivsor of Physical Plant Operations) — 42,200

- Attendees at Continuing Education workshops power plant programs, etc. 700
- Salespersons (books, supplies, equipment) 255
- Visiting scholars, presenters for C.E. programs, actors for Guthrie Theatre 100

Number of visits	1,055	
Estimated amount per visit (room & board)	40	
For Recreational Purposes: (Estimates provided by Director of Athletics & Physical Education)		$116,100

Basketball	18 @	350 =	6,300
Football	5 @	210 =	1,050
Wrestling	4 @	400 =	1,600
Baseball	9 @	40 =	360
Track	1 @	150 =	150
Cross Country	1 @	150 =	150
Regional Meets	2 @	1,000 =	2,000

Number of visits		11,610
Amount per visit (assuming 10% of visitors remain overnight)		$ 10
For Educational Purposes: (Estimates based on a review of each campus function listed on "Facilities and Usage Report")		$112,500

- Musicals, conventions, seminars, workshops, ACT tests, speech fesitvals, music festivals, visiting scholars, professional association meetings, church meetings, graduation ceremonies

Number of visits		7,500
Amount per visit (assuming 10% of visitors remain overnight)		$ 15
For Personal Purposes:		$618,449
Source: Student Survey Question 8		
Money spent on trips to Bismarck for shopping, gas, meals, lodging, entertainment, etc. by parents, guardians, or close friends because student is enrolled at BJC	$141,870	
Total of survey question	$141,870	
Number of responses	337	
Average expenditure per student	$ 421	
Full-time enrollment (RD #13)	1,469	
Total expenditure	$618,449	

25. Number of Students Obtaining Local Room and Board From Dormitories, Other Groups, or Parents — 860

Source: Enrollment Report

Dormitories & campus apartment	241
Parents (Bismarck resident)	619
Total	860

26. Number of Students Renting Local Housing — 405

Source: Student Survey Question 4A

Number renting-S.S. 4A	93
Number surveyed	337
Percent renting	27.6 %
Full-time enrollment	1,469
Total number renting	405

27. Average Miscellaneous Expenditures, Exclusive of Room and Board, Per Student Obtaining Local Room and Board From Dormitories and Parents — $ 765

Source: Student Survey Question 6-C-E

Amount spent per month for	
Transportation	$47
Other	38
Total	$85
For 9 months	$765

28. Average Rental Housing Expenditure Per Student — $1,278

Source: Student Survey Question 6

Total rent	$12,043
Responses	85
Average monthly rent	142
For 9 months	$ 1,278

29. Average Nonhousing Expenditures Per Student Who Rents Local Housing — $1,620

Source: Student Survey Question 4A, 6A, 6C, and 6E

For students who rent, amount spent per month for		
Food	$6,915 ÷ 91 =	$ 76
Transportation	5,137 ÷ 91 =	56
Other expenses	4,391 ÷ 91 =	48
Total		$180
For 9 months		$1,620

30. Number of Nonlocal Students

204

Source: Enrollment Report 1980-81
Annual Report 1980-81

Bismarck resident students	619	
Living in on-campus housing	241	
Students renting local housing (RD #26)	405	
Total number of students living in Bismarck while attending BJC		1,265
Nonlocal students (living outside of Bismarck)		204
Total full-time enrollment		1,469

31. Average Local Expenditure by Each Nonlocal Student

$765

Source: Student Survey Question 6

Average monthly student expenditure for:

Transportation	$47
Other	38
Total	$85
For 9 months	$765

32. The Gravity Model - Local

98%

Source: Appendix C of "Estimating the Impact of a College or Univeristy on the Local Economy"

The factor e_L represents the proportion of total non-housing expenditures that an individual is likely to make in his/her local environment. This factor assumes the gravity theory, which states that the amount of money spent for nonhousing expenditures is inversely proportional to the square of the distance to the point of purchase. This is shown in the following equation:

$$e_L = \frac{\frac{E}{F^2}}{\frac{E}{F^2} + \frac{G}{H^2}}$$

E = total period retail sales in the local environment (Bismarck) (RD #22) — $519 M

F = average distance or travel time for a local individual to make a purchase within his/her local environment (RD #23) — 3 miles

G = total period retail sales in the competing neighboring community of Mandan (RD #22) — $141 M

H = average distance or travel time for the local individual to make a purchase in the competing neighboring community of Mandan (RD #23) — 10 miles

This assumed proportion is not necessarily universally true, and the user may wish to verify this by use of a survey question. However, for this survey, the gravity model equation is used.

$$e_L = \frac{\frac{\$519M}{3^2}}{\frac{\$519M}{3^2} + \frac{\$141M}{10^2}}$$

$$= \frac{57.66}{57.66 + 1.41}$$

$$= \frac{57.66}{59.07}$$

$$= .98$$

33. The Gravity Model - Nonlocal — 878

Source: Appendix C "Estimating the Impact of a College or University on the Local Economy"

The factor e_N represents the proportion of expenditures that an individual is likely to make in his/her local environment. This is shown in the following equation:

$$e_N = \frac{\frac{E}{F^2}}{\frac{E}{F^2} + \frac{G}{H^2}}$$

E = total period retail sales in the local environment, Mandan (RD #22) — $141 M

F = average distance for a Mandan individual to make a purchase within his/her local environment of Mandan (RD #23) — 2 miles

G = total period retail sales in the competing neighboring community of Bismarck (RD #22) — $519 M

H = average distance for a Mandan individual to make a purchase in the competing neighboring community of Bismarck (RD #23) — 10 miles

$$e_N = \frac{\frac{E}{F^2}}{\frac{E}{F^2} + \frac{G}{H^2}}$$

$$= \frac{\frac{\$141M}{2^2}}{\frac{\$141M}{2^2} + \frac{\$519M}{10^2}}$$

$$= \frac{35.25}{35.25 + 5.19}$$

$$= \frac{35.25}{40.44}$$

$$= .8716$$

Percent spent in his/her home environment	87%
Percent spent outside his/her home environment	13
Total	100%

34. Assessed Valuation of Local Business Real Property — $41,232,272

Source: Bismarck City Assesor's Office

35. Ratio of Assessed Value to Market Value of Taxable Commercial Property — .10

Source: Bismarck City Assessor's Office

36. Reserve Requirements

Sources: First Bank of Bismarck
State Bank of Burleigh County
North Dakota Credit Union League
First Federal Savings & Loan

Banks - Time deposits	3%
Banks - Demand deposits	3%
Credit Unions - Time deposits	0%
Credit Unions - Demand deposits	0%
Savings & Loan Associations - Time deposits	5%

37. Deposits of BJC in Local Banks

Source: Director of Administrative & Fiscal Services

Average time deposits	$710,000
Average demand deposits	$155,000

38. Average Faculty & Staff Deposits in Bismarck Lending Institutions — $ 6,311

Source: College Staff Survey Question 13

Average amount in bank checking accounts	$ 723
Average amount in bank savings accounts	2,117
Average amount in credit union savings accounts	1,938
Average amount in savings and loan savings accounts	1,533
Total	$6,311

39. Average Construction Costs Expended by the College Per Year — $660,231

Source: Physical Facilities Manual, June, 1980
Consumer Price Indexes

	Year	Cost	CPI Increase to 1980	Replace. Cost 1980 Value
Schafer Building	1961	$1,418,384	139.6	$3,398,448
Rue Fine Arts Addition	1964	60,000	136.3	141,780
Men's Dormitory	1965	798,276	134.7	1,873,554
Remodeling Bus. Ed. & Art Dept.	1975	91,237	68.0	153,278
Library Building	1968	707,370	125.0	1,591,582
Student Residence Hall	1972	541,308	102.4	~~1,956,607~~ 1,095,607
Student Union	1974	870,596	81.5	1,580,132
Student Union-Basement Area	1980	29,499	0.0	29,499
Vocational-Technical Building (BJC share, 70% X $1,700,000)	1974	1,700,000	81.5	3,085,500
Student Housing Apartments	1979	394,949	11.5	440,368
Multi-Purpose Skills Center	1982	1,200,000	0.0	1,200,000
Total Construction Cost		$7,811,619		~~$15,450,748~~ 14,589,748
Less PSD share of Vo. Tech. Bldg. 30%		510,000	81.5	925,650
Net BJC construction cost		$7,301,619		~~$14,525,098~~ 13,664,098
Time 22 years				
Average construction cost expenditure per year		$ 331,892		$ ~~660,232~~ 621,095

40. Labor as a Proportion of Construction Cost — 50%
Supplies and Materials as a Proportion of Const. Cost — 50%
Proportion of Labor Cost that Goes to Local Workers — 90%
Proportion of Supplies & Maintenance that Goes to Local Firms — 70%

Source: Economic Impact of Higher Education in ND, Dobesh and Henry, Bureau of Business & Economic Research, University of ND

41. Inventory-to-Business Volume Ratio — 15%

Source: Individual survey of several local retailers by chairperson of Management Department, James Wright

This compares favorably to the corresponding ratio of 12.8% used by Harrisburg Area Community College in "The Impact of the College on the local Economy," 1973

42. Average Deposits in Bismarck Lending Institutions by Full-time Students Who Live in Bismarck While Attending BJC — $971

Source: Student Survey #2

Average amount in Bismarck banks checking accounts	$112.99
Average amount in Bismarck credit unions savings accounts	442.35
Average amount in Bismarck savings and loan savings accounts	90.77
Total	$970.51

43. Average Deposits in Bismarck Lending Institutions by Full-time Students Who Live Outside of Bismarck While Attending BJC — $426

Source: Student Survey #2

Average amount in Bismarck banks checking accounts	$ 86.36
Average amount in Bismarck banks savings accounts	259.91
Average amount in Bismarck credit unions savings accounts	65.59
Average amount in Bismarck savings and loan savings accounts	13.64
Total	$425.50

44. Consumer Price Indexes

Source: Bureau of Labor Statistics, United States Department of Labor

1961	89.6	1971	121.3
1962	90.6	1972	126.8
1963	91.7	1973	133.1
1964	92.9	1974	147.7
1965	94.5	1975	161.2
1966	97.2	1976	170.5
1967	100.0	1977	181.5
1968	104.2	1978	195.3
1969	109.8	1979	217.7
1970	116.3	1980	229.2

45. Bismarck Junior College School District Levy for 1981 — 14.44 mills

Source: Burleigh County levies, 1981
Bernice Asbridge, County Auditor

Special Assessment	1.64 mills
General Operation	8.79 mills
Social Security	2.01 mills
Bond Redemption	2.00 mills
	14.44 mills

46. Population Trend of Bismarck

Source: Census of Population, Bureau of the Census, U.S. Department of Commerce

Year	Number	Increase over previous decade
1930	11,099	
1940	15,496	39.6%
1950	18,640	20.3%
1960	27,760	48.9%
1970	34,703	25.3%
1980	44,447	28.0%
2000	*94,381	

Population - 1980	44,447	
Population - 1930	11,099	
Increase in population	33,348	Average per year 667
Rate of increase	300.5%	Average per year 6.01%

*Estimate from Project 2000, Bismarck Area Chamber of Commerce

47. Population Trend of Mandan

Source: Census of Population, Bureau of the Census, U.S. Department of Commerce

Year	Number	Increase over previous decade
1930	5,037	
1940	6,685	32.7%
1950	7,298	9.2%
1960	10,525	44.2%
1970	11,093	5.4%
1980	15,378	38.6%

Population - 1980	15,378	
Population - 1930	5,037	
Increase in population	10,341	Average per year 207
Rate of increase	205%	Average per year 4.1%

48. Tax Base

Source: Burleigh County Auditor's Office

Market value ÷ 9 (for residential property) = assessed value
Market value ÷ 10 (for commercial property) = assessed value
Assessed value ÷ 2 = taxable value
Taxable value x mill levy = amount of tax

49. Worth of a College Degree

$8,500

Source: Census figures for 1980

College grads earn an average of about $8,500 more per year than high school grads.

Chapter 9

COMPUTATION FOR MODELS

MODEL B-1

COLLEGE-RELATED LOCAL BUSINESS VOLUME	$11,019,718

B-1 = A + B + C

= $6,359,351 + $3,495,276 + $1,165,091

A =	college-related local expenditures (model B-1.1)	$ 6,359,351
B =	purchases from local sources by local businesses in support of their college-related business volume (model B-1.2)	$ 3,495,276
C =	local business volume stimulated by the expenditure of college-related income by local individuals other than faculty, staff, or students (model B-1.3)	$ 1,165,091

Model B-1 and its component submodels accumulate the direct purchases from local businesses made by the college and faculty staff, students, and visitors (B-1.1); the purchases from local sources by local businesses in support of their college-related business volume, or "second-round" purchases (B-1.2); and the amount of local business volume stimulated by the expenditure of college-related income by local individuals other than faculty, staff, or students (B-1.3). (This last element is one of the multiplier effects discussed in appendix B.)

MODEL B-1.1

COLLEGE-RELATED LOCAL EXPENDITURES	$6,359,351

B-1.1 = A + B + C + D

= $2,004,443 + $1,640,062 + $1,825,596 + $889,249

A =	local expenditures by the college (model B-1.1.1)	$2,004,443
B =	local expenditures by faculty and staff (model B-1.1.2)	$1,640,062
C =	local expenditures by students (model B-1.1.3)	$1,825,597
D =	local expenditures by visitors to the college (model B-1.1.4)	$ 889,249

Model B-1.1 is the dollar value of college-related local direct expenditures. These include expenditures by the college as an institution (B-1.1.1), by facutly and staff (B-1.1.2), by students (B-1.1.3), and by visitors to the college (B-1.1.4).

MODEL B-1.1.1

LOCAL EXPENDITURES BY THE COLLEGE $2,004,443

B-1.1.1 = A (B - C - D - E) + F

= .76 ($4,939,765 - 2,807,577 - 0 - $189,742) + $265,513

= .76 (1,942,446) + 528,185

= 1,476,258 + 265,513

= $ 2,004,443

A =	proportion of total college expenditures that are local, excluding compensation, internal items, and taxes (RD #1)	.76
B =	total college expenditures (RD #1)	$4,939,765
C =	Gross compensation to faculty, staff, and students (RD #1)	$2,807,577
D =	internal account transfers and payments	-0-
E =	taxes and other payments to governments (RD #1)	$ 189,742
F =	construction expenditures which remain locally (Model B-1.1.1.1)	$ 528,185

Model B-1.1.1 estimates the value of purchases of goods and services by BJC from local businesses. These are only a portion of total college expenditures. The proportion, is derived from total expenditures, excluding wages and salaries, various account transfers, and internal payments that appear on the books, and taxes and other payments to governments. Because of the large number of expenditure transactions, the disbursements and vendor records were random sampled to estimate the proportion. (See RD #2)

Wages and salaries are not included here but are considered separately elsewhere. Taxes and other payments to all governments are excluded since, by definition, they are not in the business sector.

MODEL B-1.1.1.1

CONSTRUCTION EXPENDITURES WHICH REMAIN LOCALLY $528,185

B-1.1.1.1 = (A x C x E) + (B x D x E)

= (.50 x .90 x $331,892) + (.50 x .70 x $331,892)

= (.45 x $660,232) + (.35 x $660,232)

= $297,104 + $231,081

= $528,185

A =	labor as a proportion of construction cost (RD #40)	50%
B =	supplies and materials as a proportion of construction cost (RD #40)	50%
C =	proportion of labor cost that goes to local workers (RD #40)	90%
D =	proportion of labor, supplies, and maintenance that goes to local firms (RD #40)	70%
E =	average annual construction expenditure (RD #39)	$660,232

Model B-1.1.5 estimates the amount of expenditures for construction that remains locally. Amounts for construction are spent in addition to the operating funds and other auxiliary funds of the college. Labor estimates are computed by multiplying the labor proportion of construction expenditures times the proportion of labor that goes to local workers times the construction expenditures.

Supplies and materials estimates are computed by multiplying the supplies and materaials proportion of construction expenditures times the proportion of materials and supplies expenditures that goes to local firms times the construction expenditures.

The computations are then added to obtain the total amount of construction expenditures that remain locally.

MODEL B-1.1.2

LOCAL EXPENDITURES BY FACULTY AND STAFF $1,640,062

B-1.1.2 = A + B + C

= $73,061 + 1,381 + 185,058

A = expenditures by faculty and staff for local rental housing (model B-1.1.2.1) $ 73,061

B = local nonhousing expenditures by local faculty and staff (model B-1.1.2.2) $1,381,943

C = local expenditures by nonlocal faculty and staff (model B-1.1.2.3) $ 185,058

Model B-1.1.2 estimates the dollar volume of local purchases of personal goods and services by college faculty and staff households. These purchases are made by two groups, those residing in Bismarck and those residing outside of Bismarck. Both rental housing and nonhousing expenditures by local residents are considered. Nonrental housing is considered later as part of the value of local real property related to the college. For nonlocal faculty and staff, only nonhousing expenditures are considered. The three items added together should approximate the dollar value of local expenditures by the faculty and staff of the college.

Understatement is evident again in this model. Owner-occupied dwelling units are not considered. Real-property value is considered elsewhere, but model B-1.1.2 excludes such items as payments to real-estate brokers, payment of interest charges on outstanding mortgages to local banks, and payment of insurance premiums on owner-occupied dwelling units. Also avoided is any consideration of imputed rental on houses owned outright by faculty and staff, that is, what the rent might be if the houses were offered in the rental market.

MODEL B-1.1.2.1

EXPENDITURES BY FACULTY AND STAFF FOR LOCAL RENTAL HOUSING — $ 73,061

B-1.1.2.1 = A x B x C x D

= .85 x .125 x 2,382,660 x .2886

A =	proportion of faculty and staff residing locally (Bismarck) (RD #4)	85%
B =	proportion of local faculty and staff who rent housing (Bismarck (RD #6)	12.5%
C =	total disposable income of faculty and staff (RD #7)	$2,382,660
D =	proportion of a tenant's total expenditures likely to be spent for rental housing (RD #16)	28.86%

Models B-1.1.2.1 and B-1.1.2.2 measure expenditures-rental housing and nonhousing-of local faculty and staff. These models represent the arithmetic products of the respective terms. Only disposable income is given as a dollar figure; expenditures are listed as percentages. Model B-1.1.2.1 yields a dollar value for the (A) term in B-1.1.2.

Both models are subject to an inherent bias, and, in applying them, the user should be aware of this problem. Both multiply the take-home pay of faculty and staff by the proportion of faculty and staff residing in the community. The underlying assumption is that the income received by those who reside in the college community is representative of all faculty and staff. Generally, however, the faculty will receive higher wages than the staff.

The user should be aware of another aspect of these two models: income is assumed equal to expenditures. Clearly, this is not the case for large numbers of households. It is not the case if savings exist, if net borrowing earners in the household (a particlularly important source of income), and/or if there are other income sources such as dividends, royalties, or family business profits.

The models assume that all disposable income received from the college by employees is spent. To the extent that some is not spent, the case is overstated; however, it is likely that a household has other income sufficient to make its total expenditures no less than the employee's salary after normal deductions. In effect, the net result of this assumption will probably yield a moderate understatement of the annual purchases of goods and services from local businesses by resident faculty and staff.

MODEL B-1.1.2.2

LOCAL NONHOUSING EXPENDITURES BY LOCAL FACULTY AND STAFF — $1,381,943

B-1.1.2.2 = A x B x C x D

= .85 x .98 x 2,382,660 x .70

A = proportion of faculty and staff residing locally (Bismarck) (RD #4) — .85

B = proportion of total nonhousing expenditures that an individual is likely to make in his local environment (Gravity Model below) (RD #32) — .98

C = total disposable income of faculty and staff (RD #7) — 2,382,660

D = proportion of a consumer's total expenditures spent on nonhousing items (RD #19) — .70

The Gravity Model - Local (See RD #32)

The factor B represents the proportion of total nonhousing expenditures that an individual is likely to make in his/her local environment. This factor assumes the gravity theory, which states that the amount of money spent for nonhousing expenditures is inversely proportional to the square of the distance to the point of purchase. This is shown in the following equation:

$$B = \frac{\frac{E}{F^2}}{\frac{E}{F^2} + \frac{G}{H^2}}$$

$$B = \frac{\frac{\$519M}{3^2}}{\frac{\$519M}{3^2} + \frac{\$141M}{10^2}}$$

$$B = \frac{57.66}{57.66 = 1.41}$$

$$B = \frac{57.66}{59.07}$$

$$B = .98$$

E =	total period retail sales in the local environment (Bismarck) (RD #22)	$519,126,529
F =	average distance or travel time for a local individual to make a purchase within his/her local environment (RD #23)	3 miles
G =	total period retail sales in the competing neighboring community of Mandan (RD #22)	$141,617,496
H =	average distance or travel time for the local individual to make a purchase in the competing neighboring community of Mandan (RD #23)	10 miles

MODEL B-1.1.2.3

LOCAL EXPENDITURES BY NONLOCAL FACULTY AND STAFF $185,058

$$B\text{-}1.1.2.3 = (1 - A) \times B \times C$$
$$= (1 - .85) \times 149 \times 8,280$$
$$= .15 \times 149 \times 8,280$$

A =	proportion of faculty and staff residing locally (RD #4)	85%
B =	total number of faculty and staff (RD #21)	149
C =	estimated average local expenditures by each nonlocal faculty and staff person (RD #20)	$8,280

Model B-1.1.2.3 expresses local expenditures made by nonlocal faculty and staff such as those living in Mandan and surrounding areas. The previously obtained A is the proportion of faculty and staff residing locally. Therefore, 1-A is the proportion of faculty and staff not residing locally. This proportion, multiplied by the total number of faculty and staff, B, yields the number of nonlocal faculty and staff.

MODEL B-1.1.3

LOCAL EXPENDITURES BY STUDENTS	$1,825,597

B-1.1.3 = A + B + C + D + E

= 644,742 + 517,590 + 642,978 + 20,287 + 0

A =	local miscellaneous expenditures by students obtaining local room and board from dormitories, fraternities, sororities, other groups, or parents (model B-1.1.3.1)	$ 644,742
B =	expenditures by students for local rental housing (model B-1.1.3.2)	$ 517,590
C =	local nonhousing expenditures by students who rent local housing (model B-1.1.3.3)	$ 642,978
D =	local expenditures by nonlocal students (model B-1.1.3.4)	$ 20,287
E =	local expenditures by local fraternities, sororities, and other student living groups (model B-1.1.3.5)	0

The first category includes students who live in college - or university - operated residences and therefore do not purchase housing services in the community. A considerable portion of their food expenditures may be made in contract with residence halls or in payment for meals in college - owned commissaries. Depending on the community in which the college is located, a large portion of student entertainment and incidentals may be purchased from the college itself. In other cases, local merchants may meet many demands by resident students for entertainment, school supplies, clothing, medical services, and other purchasable items.

A second category is composed of those students who live off campus in the community where housing and other commodities and services are purchased in one of three major forms:

1. Students may reside in group quarters, such as fraternities, sororities, cooperatives, or noncollege dormitories.
2. Students may reside with their parents, in which case one would not usually expect them to pay for the housing, food, or personal services normally provided in a family household.
3. Students may reside in private quarters, alone, with other students, or in student-run cooperatives. (One may assume that the number of students owning their residences is quite limited; thus, for the present, all students rent.)

A third major category is made up of those students who live outside the community and will be treated in the same manner as non-resident faculty and staff.

Of particular importance is the distinction between full-time and part-time students. Part-time students, including those who attend extension or evening courses, should not be grouped with full-time students. Consider the man who works in an office and takes an evening course in accounting. Even if the program that he carries is equivalent to a third of a full-time program, it would be inappropriate to consider a third of his/her expenditures as local purchases of goods and services by a student of the college. His/her housing, food, and other normal purchases are not really college related. Accordingly, we have treated part-time students as visitors to the college.

MODEL B-1.1.3.1

LOCAL MISCELLANEOUS EXPENDITURES, EXCLUSIVE OF ROOM AND BOARD, BY STUDENTS OBTAINING LOCAL ROOM AND BOARD IN GROUP ARRANGEMENTS OR WITH PARENTS — $ 644,742

B-1.1.3.1 = A x B x C

= 860 x $765 x .98

A =	number of students obtaining local room and board from dormitories or parents (RD #30)	860
B =	average miscellaneous expenditures, exclusive of room and board, per student of this type for transportation and other expenditures (RD #27)	$765
C =	percentage of total expenditures, exclusive of room and board, that a student is likely to make in his/her local environment (See appendix C of "Estimating the Impact of a College or University on the Local Economy") (RD #32)	98%

Model B-1.1.3.1 estimates the local expenditures, exclusive of room and board, by students obtaining room and board locally in group living arrangements or parental quarters. To obtain this dollar figure, we multiply the number of such students, A, by the estimated average expenditures (exclusive of room and board) per student of this type, B. The result is then multiplied by the proportion of total expenditures, exclusive of room and board, that a student is likely to make in his/her local environment, C (see appendix C of "Estimating the Impact of a College or University on the Local Economy").

MODEL B-1.1.3.2

EXPENDITURES BY STUDENTS FOR LOCAL RENTAL HOUSING $517,590

B-1.1.3.2 = A x B

A =	number of studnets renting local housing (RD #26)	405
B =	average rental housing expenditures per student (RD #28)	$ 1,287

Model B-1.1.3.2 depicts expenditures by students for local rental housing. To obtain this figure, the number of students renting local housing, A, is multiplied by the average rental housing expenditure per student, B.

MODEL B-1.1.3.3

LOCAL NONHOUSING EXPENDITURES BY STUDENTS WHO RENT LOCAL HOUSING — $ 642,978

B-1.1.3.3 = A x B x C

= 405 x $1,620 x .98

A =	number of students renting local housing (RD #26)	405
B =	average nonhousing expenditures per student for food, transportation, and other miscellaneous expenditures (RD #29)	$ 1,620
C =	percentage of total nonhousing expenditures that a student is likely to make in his/her local environment (RD #32)	98%

Model B-1.1.3.3 defines local nonhousing expenditures by students who rent local housing. The number of students renting local housing, A, is multiplied by the average nonhousing expenditures per student, B, and the resulting figure is multiplied by the proportion of expenditures an individual is likely to make in his/her local environment, C.

MODEL B-1.1.3.4

LOCAL EXPENDITURES BY NONLOCAL STUDENTS $20,288

B-1.1.3.4 = A x B x C

= 204 x 765 x .13

A =	number of nonlocal students (RD #30)	204
B =	average local expenditures by each nonlocal student (RD #31)	$ 765
c =	percentage of expenditures made outside his/her home environment (RD #33)	13%

In Model B-1.1.3.4, the dollar expenditures by nonlocal students are estimated by multiplying the number of students not resident locally, A, by the average local expenditures by each such student, B, by the proportion of expenditures that an individual is likely to make in his/her home environment, c.

MODEL B-1.1.4

LOCAL EXPENDITURES BY VISITORS TO THE COLLEGE $889,249

$$B\text{-}1.1.4 = (V_1 \times A_1) + (V_2 \times A_2) + (V_3 \times A_3) + B$$

$$= (1{,}055 \times \$40) + (11{,}610 \times 10) + (7{,}500 \times 15) + 618{,}449$$

$$= 42{,}200 + 116{,}100 + 112{,}500 + 618{,}449$$

$$= \$889{,}249$$

V_1 =	estimated number of visits for business reasons, e.g., book salespersons, foundation representatives, or guest lecturer (RD #24)	1,055
A_1 =	estimated amount per visit for V_1 (RD #24)	$ 40
V_2 =	estimated number of visits for recreational purposes, e.g., attending athletic events, concerts, art exhibits (RD #24)	11,610
A_2 =	estimated amount per visit for V_2 (RD #24)	$ 10
V_3 =	estimated number of educational visits, e.g., conference attendees, and seminar participants	7,500
A_3 =	estimated number of educational visits, e.g., conference attendees, and seminar participants	$ 15
B =	estimated expenditure by personal visitors, e.g., parent, friend, prospective student (RD #24)	$618,449

Model B-1.1.4 considers local expenditures by visitors. To obtain this figure, multiply the total number of visitors in any category mentioned above by the estimated local expenditures for each such visitor, and sum the results for n categories. The particular categories chosen can be as gross as the four described above, or they can be broken down in more detail is such data are available.

In the case of visitors, if the definition is in doubt, the category can be limited to those persons who would not normally have spent anything in the defined environment had it not been for the college's location in it.

Facts about visitor expenditures are likely to be more difficult to obtain or verify than are facts obtainable from institutional files or personnel or from local community agencies.

In calculating expenditures by visitors, it may be useful to confer with local businessmen or civic agencies, who may already have compiled data about such expenditures. Certain campus officials, such as those concerned with alumni, public relations, athletics, special events, or police, may be able to list the types of events that bring visitors to campus and the approximate expenditures made by each person.

It is important to list all the categories in the final report of the study, even if dollar values cannot be accurately ascribed in each case. The mere enumeration may be impressive and may convey more than or as much as dollar sums.

MODEL B-1.2

PURCHASES FROM LOCAL SOURCES BY LOCAL BUSINESSES IN SUPPORT OF THEIR COLLEGE-RELATED BUSINESS VOLUME — $3,495,276

$B\text{-}1.2 = m_p \times B$

$= .60 \times 5,825,456$

m_p = coefficient representing the degree to which local businesses purchase goods and services from local sources — .60

B = college-related local expenditures (model B-1.1.) — $5,825,456

Second-round local expenditures

Model B-1.2 indicates the additonal volume of local business activity resulting from stimuli provided by the purchases of goods and services considered in the other B-1 models. When the college buys from a local supplier or when a visitor eats in a local restaurant, a long train of economic transactons is set off. It allows the store owner to increase his/her purchases from other merchants. The initial dollar is respent many times; it may reappear as income to residents of the community, as business receipts by other local merchants, or a payment to suppliers outside the community. The multiplier range suggested for this formula is $.60 to $.80 per dollar of expenditures by local business establishments. The conservative figure of $.60 is used to guard against overestimating.

Model B-1.2 estimates the volume of purchases by local concerns in support of their college-related business. Thus, the coefficient m_p represents the proportion of receipts from college-related purchases used in turn to purchase goods and services from local sources.

For further information see Appendix B, "The Concept of the Multiplier" in "Estimating the Impact of a College or University on the Local Economy", by Caffrey and Isaacs.

MODEL B-1.3

LOCAL BUSINESS VOLUME STIMULATED BY THE EXPENDITURE OF COLLEGE-RELATED INCOME BY LOCAL INDIVIDUALS OTHER THAN FACULTY, STAFF, OR STUDENTS — $1,165,091

$B\text{-}1.3 = m_i \times B$

m_i = coefficient representing the degree to which individual income received from local business activity is spent and respent locally — .20

B = college-related local expenditures (model B-1.1) — $5,825,456

Second-round local expenditures

Model B-1.3 indicates the additional volume of local business activity resulting from stimuli provided by the purchases of goods and services considered in the other B-1 models. When the college buys from a local supplier or when a visitor eats in a local restaurant, a long train of economic transactions is set off. The initial dollar is respent many times; it may reappear as income to residents of the community, as business receipts by other local merchants, or a payment to suppliers outside the community.

Model B-1.3, the second estimation of indirect effects of college-related business activity, represents personal income-induced business activity in the local community. As noted above, some of the receipts by local businessmen will be paid out to local residents in the form of wages, salaries, and entrepreneurial returns, and a portion of this money will be spent for the everyday purposes of its recipients. The coefficient m_i represents the proportion of income received from local college-related business activity that is spent and respent locally. The range of the multiplier suggested by Caffrey and Isaacs is $.15 to $.30 per dollar of expenditures by local residents in local businesses. To provide a conservative estimate $.20 is used as the multiplier coefficient.

MODEL B-2

VALUE OF LOCAL BUSINESS PROPERTY COMMITTED TO COLLEGE-RELATED BUSINESS — $10,148,628

B-2 = A + B + C

A =	value of local business real property committed to college-related business (model B-2.1)	$ 8,535,071
B =	value of local business inventory committed to college-related business (model B-2.2)	$ 1,613,557
C =	value of local business property, other than real property and inventory, committed to college-related business (model B-2.3)	Omit

Model B-2 pictures the capital and property related to the business activity generated by the presence of a college, as seen in models B-1.1, B-1.2, and B-1.3. If we consider these three components -- B-1.1, B-1.2, and B-1.3, as purchases we can then say that we are trying to determine what portions of the existing capital and property relate to this observed flow of purchases. In effect, we are indicating how much capital and property are currently employed by business enterprises for each dollar of sales. This average figure is then apportioned to college-related sales.

MODEL B-2.1

MARKET VALUE OF LOCAL BUSINESS REAL PROPERTY COMMITTED TO COLLEGE-RELATED BUSINESS — $8,535,071

$$B\text{-}2.1 = \frac{A}{B} \times \frac{C}{d}$$

$$= \frac{\$10,757,046}{519,000,000} \times \frac{\$41,232,272}{.10}$$

$$= .0207 \times \$412,322,272 \text{ (Market Value)}$$

$$= \$8,330,525$$

A =	college-related local business volume (model B-1)	$10,757,046
B =	local business volume (RD #22)	$519,000,000
C =	assessed valuation of local business real property (RD #34)	$ 41,232,272
d =	local ratio of assessed value to market value of taxable real property (RD #35)	.10

C ÷ d = Market Value

For model B-2.1, a direct statement of the dollar value of capital facilities in the business community is normally not obtainable, thus making it necessary to use assessed valuation of business property. Variations in local and state assessment laws and practices mean that assets are treated differently under different jurisdictions. In addition, the frequency of reassessment will influence the estimates for this model; with rising prices, old assessments understate current market values. Assessed value, C, is converted to market value by the coefficient, D, the locally used ratio of assessed value to market value of taxable real property. The ratio of college-related local business volume, A, to total local business volume, B, is then multiplied by the market value of the real property.

MODEL B-2.2

VALUE OF LOCAL BUSINESS INVENTORY COMMITTED TO COLLEGE-RELATED BUSINESS — $1,613,557

B-2.2 = a x B

a =	inventory-to-business-volume ratio (RD #41)	.15
B =	college-related local business volume (model B-1)	$10,757,046

Model B-2.2 represents the value of inventory required for college-related business. To obtain this dollar figure, college-related local business volume (model B-1) is multiplied by the locally used inventory-to-business-volume ratio. This latter figure will differ from business to business and from community to community. It is suggested that a local ratio, if not available from reliable sources, be determined on a sampling basis.

MODEL B-2.3

VALUE OF LOCAL BUSINESS PROPERTY, OTHER THAN REAL PROPERTY AND INVENTORY, COMMITTED TO COLLEGE-REALTED BUSINESS

Omit

$$B\text{-}2.3 = \frac{\frac{A_1}{B_1} + \frac{A_2}{B_2} + \ldots + \frac{A_n}{B_2}}{n} \times \frac{C}{D}$$

A_n =	value of local business property other than real property and inventory, of the n^{th} enterprise	Omit
B_n =	business volume of the n^{th} enterprise	Omit
C =	college-related local business volume (model B-1)	$10,757,046
D=	value of local business real property committed to college-related business (model B-2.1)	$ 8,535,071

Model B-2.3 estimates the value of local business property, such as machinery and equipment, etc., other than real property and inventory, committed to college-related business. To obtain this figure, sum the ratios of such property to business volume for each local enterprise. The average ratio is then found by dividing this total by n, the number of local enterprises accounted for. This average ratio for local enterprises is then multiplied by the ratio of college-related business volume to total local business volume.

MODEL B-3

EXPANSION OF THE LOCAL CREDIT BASE RESULTING FROM COLLEGE-RELATED DEPOSITS — $3,072,584

B-3 = A + B + C

= $1,946,652 + $824,534 + $301,398

= $3,072,584

A =	expansion of the local banks' credit base resulting from college-related deposits (model B-3.1)	$1,946,652
B =	expansion of the local credit unions' credit base resulting from college-related deposits (model B-3.2)	$ 824,534
C =	expansion of thelocal savings and loan associations' credit base resulting from college-related deposits (model B-3.3)	$ 301,398

MODEL B-3.1

EXPANSION OF THE LOCAL BANKS' CREDIT BASE RESULTING FROM COLLEGE-RELATED DEPOSITS — $1,946.652

$$B\text{-}3.1 = (1-t)\left[B + (C \times D) + (E \times S) + (E_N \times S_N)\right] + (1-d)\left[H + (I \times D) + (J \times S) + (I_N \times S_N) + (K \times L)\right]$$

$$= (1 - .03)\left[\$710,000 + (\$2,117 \times 130) + (442 \times 1265) + (\$260 \times 204)\right] + (1 - .03)\left[\$155,000 + (723 \times 130) + (113 \times 1,265) + (86 \times 204)\right]$$

$$= .97\ (\$710,000 + \$275,210 + \$559,130 + \$53,040) + .97\ (\$155,000 + \$93,990 + \$142,945 + \$17,544)$$

$$= .97\ (1,597,380) + .97\ (409,479)$$

$$= \$1,549,458 + 397,194$$

$$= \$1,946,652$$

t =	local time-deposit reserve requirement (RD #36)	3%
B =	average time deposit of the college in local banks	$ 710,000
C =	average time deposit (savings accounts) of each faculty and staff person in Bismarck banks	$ 2,117
D =	total number of faculty and staff (RD#4)	130
E =	average time deposit (savings accounts) of each student who lives in Bismarck while attanding BJC in Bismarck banks	$ 442
E_N =	average savings deposit of each nonlocal student in Bismarck banks (RD #43)	$ 260
S =	total number of students who live in Bismarck while attending BJC	1,265
S_N =	number of nonlocal students (those who reside outside of Bismarck while attending BJC	204
d =	local demand-deposit reserve requirement (checking account) (RD #36)	3%
H =	average demand (checking account) deposit of the college in local banks	$ 155,000

I =	average demand deposit (checking account) of each faculty and staff person in local banks	$ 723
I_N =	average demand deposit (checking account) of each nonlocal student in Bismarck banks	$ 86
J =	average (checking account) of each student who lives in Bismarck while attending BJC, in local banks	$ 113
K =	cash-to-business-volume ratio	
L =	college-related local business volume (model B-1)	$10,757,046

Expansion of the Local Credit Base

Another secondary effect resulting from the economic activity of the college and of its associated personnel is the expansion of the credit base of local banks resulting from deposits by the college and its personnel and from the business activity they generate. Given the complexities of the banking business and the prevalence of branch banking (which often means that neither all deposits nor all decision-making functions are retained in the community), it is difficult to say how much the credit base of local banks is expanded by these deposits. In very fuzzy or complex cases, this analysis will best be skipped.

We may, however, obtain a minimum estimate, as indicated in model B-3. Assume that the average level of deposits in the time and demand accounts of the college; of its faculty, staff, and students; and of business enterprises can be expanded by one minus the minimum legal reserve requirements. For example, if the minimum reserve requirement is 20 percent -- that is, if the bank must hold in reserve against withdrawals from its accounts 20 percent of the amount of those accounts -- then 80 percent of the funds may be available for loan. Whether these funds are loaned and to whom they are loaned are not of interest here; the intent is to note the availability of more funds in the local money market.

The time and demand deposits of faculty, staff, and students residing either on campus or in the community would be included without survey data or specific local information. This practice would underestimate such deposits because one might well suppose that some employees have a tendency to bank near their place of work. Because of this factor, the total number of faculty, staff, and students -- rather than the number of local residents -- has been used. As is shown in the model, an average time deposit figure is used. These figures may be obtained per faculty and staff member. However, if averages are used, one must compute the average per person and multiply by the number of persons residing in the community.

In this study, the information is obtained from the College Staff Survey.

MODEL B-3.2

EXPANSION OF THE LOCAL CREDIT UNIONS' CREDIT BASE RESULTING FROM COLLEGE-RELATED DEPOSITS — $ 824,534

$$B\text{-}3.2 = (1 - t)\left[B + (C \times D) + (E \times S) + (E_N \times S_N)\right]$$

$$= (1 - 0)\left[0 + (\$1,938 \times 130) + (\$442 \times \$1,265) + (\$66 \times 204)\right]$$

$$= 1\ (0 + \$251,940 + \$559,130 + \$13,464)$$

$$= \$824,534$$

t =	local time-deposit reserve requirement	0%
B=	average time deposit (savings accounts) of the college in local credit unions	0
C =	average time deposit (savings account) of each faculty and staff person in local credit unions (RD #38)	$ 1,938
D =	total number of faculty and staff (RD #4)	130
E =	average time deposit (savings accounts) of each student who resides in Bismarck while attending BJC in local credit unions	$ 442
E_N=	average time deposit (savings accounts)of each student who does not reside in Bismarck while attending BJC	$ 66
S =	total number of students who reside in Bismarck while attending BJC	1,265
S_N=	total number of students who reside outside of Bismarck	204

Expansion of the Local Credit Base

Although some credit unions do have share draft demand accounts, this model does not attempt to include these demand deposits as an expansion of the credit unions' credit base.

Another secondary effect resulting from the economic activity of the college and of its associated personnel is the expansion of the credit base of local credit unions resulting from deposits by the college and its personnel and from the business activity they generate.

To obtain a n estimate, for model B-3.2 assume that the average level of deposits in the time accounts of the college; of its faculty, staff, and students; can be expanded by one minus the minimum legal reserve requirements. For example, if the minimum reserve requirement is 5 percent -- that is, if the bank must hold in reserve against withdrawals from its accounts 5 percent of the amount of those accounts -- then 95 percent of the funds may be available for loan. Whether these funds are loaned and to whom they are loaned are not of interest here; the intent is to note the availability of more funds in the local money market.

MODEL B-3.3

EXPANSION OF THE LOCAL SAVINGS & LOAN ASSOCIATIONS' CREDIT BASE RESULTING FROM COLLEGE-RELATED DEPOSITS — $ 301,398

$$B\text{-}3.3 = (1 - t)\left[B + (C \times D) + (E \times S) + (E_N \times S_N)\right]$$

$$= (1 - .05)\left[0 + (1{,}533 \times 130) + (\$91 \times 1{,}265) + (\$14 \times 204)\right]$$

$$= .95\ (0 + \$199{,}290 + \$115{,}115 + \$2{,}856)$$

$$= .95\ (\$317{,}261)$$

$$= \$301{,}398$$

t =	local time-deposit reserve requirement	5%
B =	average time deposit of the college in local savings and loan associations	0
C =	average time deposit (savings accounts) of each faculty and staff person in local savings and loan associations	$ 1,533
D =	total number of faculty and staff	130
E =	average time deposit (savings account) of each student who resides in Bismarck while attending BJC in local savings and loan associations	$ 91
S =	total number of students who reside in Bismarck while attending BJC	1,265
S_N =	total number of students who do not reside in Bismarck while attending BJC	204

Expansion of the Local Credit Base

Another secondary effect resulting from the economic activity of the college and of its associated personnel is the expansion of the credit base of local savings and loan associations resulting from deposits by the college and its personnel and from the business activity they generate.

To obtain a n estimate, for model B-3.3, assume that the average level of deposits in the time accounts of the college; of its faculty, staff, and students; can be expanded by one minus the minimum legal reserve requirements. For example, if the minimum reserve requirement is 5 percent -- that is, if

the bank must hold in reserve against withdrawals from its accounts 5 percent of the amount of those accounts -- then 95 percent of the funds may be available for loan. Whether these funds are loaned and to whom they are loaned are not of interest here; the intent is to note the availability of more funds in the local money market.

Chapter 10

SUMMARY

The economic impacts of BJC on its surrounding community are varied and complex, and the interpretation of the impacts as revealed by this model should receive careful consideration. The model, developed for the express purpose of measuring economic impact of colleges, has been tested and validated by use in earlier research. In this model the researcher used cautious figures in calculating the impacts.

Dollar amounts were used as defined by the models. It would be erroneous and misleading to combine any of the figures or try to arrive at a total dollar figure. Each model represents a different kind of impact. Therefore, any representation is interpreted within the limits of each model and sub-models.

Model B-1 College-Related Business Volume	$11,019,718
This model includes:	
1. Local expenditures by the College, faculty, staff, students, and visitors to the College	$ 6,359,351
2. Purchases from local sources by local businesses in support of their college-related business	$ 3,495,276
3. Local business volume stimulated by college-related income by local individuals other than College faculty, staff, and students	$ 1,165,091
Model B-2 Value of Local Business Property Committed to College-Related Business	$10,148,628
This model includes:	
1. Value of local business real property committed to college-related business	$ 8,535,071
2. Value of local business inventory committed to college-related business	$ 1,613,557
Model B-3 Expansion of the Local Lending Institutions Credit Base	$ 3,072,584
This model includes:	
1. Expansion of the local banks credit base resulting from college-related deposits	$ 1,946,652

2. Expansion of local credit unions credit base resulting from college-related deposits $ 824,534

3. Expansion of local savings and loan associations credit base resulting from college-related deposits $ 301,398

A summary of findings of this study is as follows:

1. The annual total college-related spending in Bismarck is $11.0 million.

   - $6.3 million is spent locally by the College staff, students and visitors to the College
   - $3.5 million is a result of purchases from local sources by local businesses in support of college-related business
   - $1.2 million is a result of local business volume stimulated by college-related income by local individuals other than faculty, staff, and students

2. The total value of local business property committed to college-related business is $10.1 million.

   - $8.5 million is the value of local business real property committed to college-related business
   - $1.6 million is the value of local business inventory committed to college related business

3. The expansion of local lending institutions credit base is valued at $3 million.

   - $1.9 million is the expansion of credit base for banks
   - $.8 million is the expansion of credit base for credit unions
   - $.3 million is the expansion of credit base for savings and loan associations

Bismarck taxpayers receive an economic impact in relation to the tax dollars contributed.

The local taxpayers contribute about $699,072 annually as a result of 12.8 mills levied for the general operation, social security, and bond redemption for Bismarck Junior College.

As a result each $1 of local tax money results in:

- $15.76 of college related spending in Bismarck

- $14.52 of local business property committed to college-related business
- $ 4.40 of expansion of the credit base of lending institutions

This study is limited to the economic impacts on local businesses. There are several benefits to understanding the immediate economic impact of having a college located in a city.

1. The study can improve community-college relations by revealing the economic relationships the town and the college share.
2. Local political leaders and citizens can be made aware of the economic benefits that the College generates in relation to the tax burden.
3. Faculty, staff, and students can be made aware of their immediate contribution to the economy of their local communities.
4. State political leaders and state citizens can see that the College's immediate outlay of funds in support of higher education does not disappear, but rather is returned to the local economy and remains in the state.

ANNUAL ESTIMATED ECONOMIC IMPACTS OF BISMARCK JUNIOR COLLEGE ON THE LOCAL ECONOMY

ECONOMIC IMPACTS ON LOCAL BUSINESSES	$24,240,930
College-Related Local Business Volume	11,019,718
College-Related Local Expenditures	6,359,351
Local Expenditures by the College	2,004,443
Construction Expenditures Which Remain Locally	528,185
Local Expenditures by Faculty and Staff	1,640,062
Expenditures by Faculty and Staff for Local Rental Housing	73,061
Local Nonhousing Expenditures by Local Faculty and Staff	1,381,943
Local Expenditures by Nonlocal Faculty and and Staff	185,058
Local Expenditures by Students	1,825,597
Local Miscellaneous Expenditures, Exclusive of Room and Board, by Students Obtaining Local Room and Board in Group Arrangements or with Parents	644,742
Expenditures by Students for Local Rental Housing	517,590
Local Nonhousing Expenditures by Students Who Rent Housing	642,978
Local Expenditures by Nonlocal Students	20,288
Local Expenditures by Visitors to the College	889,249
Purchases from Local Sources by Local Businesses in Support of Their College-Related Business Volume	3,495,276
Local Business Volume Stimulated by the Expenditure of College-Related Income by Local Individuals Other than Faculty, Staff, or Students	1,165,091
Value of Local Business Property Committed to College-Related Business	10,148,628

Value of Local Business Real Property Committed to College-Related Business	$ 8,535,071
Value of Local Business Inventory Committed to College-Related Business	1,613,557
Expansion of the Local Credit Base Resulting from College-Related Deposits	3,072,584
Expansion of the Local Banks Credit Base Resulting from College-Related Deposits	1,946,652
Expansion of the Local Credit Unions Credit Base Resulting from College-Related Deposits	824,534
Expansion of the Local Savings and Loan Associations Credit Base Resulting from College-Related Deposits	301,398

ANNUAL ESTIMATED ECONOMIC IMPACTS OF BISMARCK JUNIOR COLLEGE ON THE LOCAL ECONOMY

ECONOMIC IMPACTS ON LOCAL BUSINESSES	$24,240,930
B-1 College-Related Local Business Volume	11,019,718
B-1.1 College-Related Local Expenditures	6,359,351
B-1.1.1 Local Expenditures by the College	2,004,443
B-1.1.1.1 Construction Expenditures Which Remain Locally	528,185
B-1.1.2 Local Expenditures by Faculty and Staff	1,640,062
B-1.1.2.1 Expenditures by Faculty and Staff for Local Rental Housing	73,061
B-1.1.2.2 Local Nonhousing Expenditures by Local Faculty and Staff	1,381,943
B-1.1.2.3 Local Expenditures by Nonlocal Faculty and and Staff	185,058
B-1.1.3 Local Expenditures by Students	1,825,597
B-1.1.3.1 Local Miscellaneous Expenditures, Exclusive of Room and Board, by Students Obtaining Local Room and Board in Group Arrangements or with Parents	644,742
B-1.1.3.2 Expenditures by Students for Local Rental Housing	517,590
B-1.1.3.3 Local Nonhousing Expenditures by Students Who Rent Housing	642,978
B-1.1.3.4 Local Expenditures by Nonlocal Students	20,288
B-1.1.4 Local Expenditures by Visitors to the College	889,249
B-1.2 Purchases from Local Sources by Local Businesses in Support of Their College-Related Business Volume	3,495,276
B-1.3 Local Business Volume Stimulated by the Expenditure of College-Related Income by Local Individuals Other than Faculty, Staff, or Students	1,165,091
B-2 Value of Local Business Property Committed to College-Related Business	10,148,628

B-2.1 Value of Local Business Real Property Committed to College-Related Business	$ 8,535,071
B-2.2 Value of Local Business Inventory Committed to College-Related Business	1,613,557
B-3 Expansion of the Local Credit Base Resulting from College-Related Deposits	3,072,584
B-3.1 Expansion of the Local Banks Credit Base Resulting from College-Related Deposits	1,946,652
B-3.2 Expansion of the Local Credit Unions Credit Base Resulting from College-Related Deposits	824,534
B-3.3 Expansion of the Local Savings and Loan Associations Credit Base Resulting from College-Related Deposits	301,398

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